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# USSR Report

AGRICULTURE

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12 June 1984

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### DETAILS OF SOWING PROGRESS IN ROSTOVSKAYA OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 11 Apr 84 p 3

[Article by Yu. Maksimenko: "The Don Conducts Sowing"]

[Text] In the southern, eastern and central zones of Rostovskaya Oblast, kolkhoz and sovkhos grain growers having overcome the consequences of dust storms, have completed the sowing of early crops within optimal time limits. The sowing has been transferred to the upper reaches of the Don.

I. Bova, director of the Oblast Agricultural Administration, stated in a conversation: "The important thing in our work now is to sow the fields in the best length of time and establish a reliable base for the harvest. We have to maintain a balance in the sowing of grain crops in order to obtain the planned grain harvests, improve quality, realize the goals for each operation and each rayon in sales of grain to the government and liquidate debts. In order to resolve this key task, the kolkhozes, sovkhoses and other subdivisions of the agricultural industrial complex will utilize great material and technical resources. The seed, technology and fertilizer have been prepared. Hundreds of high-productivity detachments and complexes are working at sowing the fields."

The Zernogradskiy rayon is one of the largest grain sowing rayons of the oblast. Here, the rayon agricultural industrial associations and operations, with the help of science, have cultivated and are persistently placing into operation the complex program, "Grain". The stable gross yields of grain are projected to reach one half million tons in the next few years: a crop productivity of 40 quintals per hectare.

"Although this is a difficult task, it is a practicable one," V. Voronin, first secretary of the Party Zernogradskiy Raikom, told us. "We are teaching the management personnel, the agricultural specialists and the captains of the middle links to more productively utilize every hectare of land and to introduce advanced technology and agricultural processes."

According to the calculations of the agricultural administration, with which its Chief Agronomist, N. Murmal', acquainted me, the grain fields of the rayon now occupy no less than 118 thousand hectares. Taking the conditions into consideration, a complex of agricultural measures has been

worked out and is being implemented in every operation in order to fulfill the plans. In the current year 430 thousand tons of grain will be produced, including 150 thousand tons of winter wheat, 180 thousand tons of spring barley, peas, millet and other crops, and 100 thousand tons of corn. In order to fulfill their obligations and liquidate their debts to the government, the operations of the rayon make up the shortage in winter wheat by increasing the planting of corn, spring barley and sorghum, increasing their productivity. Almost two thirds of the winter field--20,000 hectares --are cultivated according to the productive technology of strong and valuable wheat.

It is a pleasure to see the emerald-green winter carpet at the Lenin Kolkhoz. While showing us the fields, the Chief Agronomist of the operation, Lyubov' Vasil'evna Kolesnichenko, told us how the peasants had succeeded in "snatching" a better time for sowing from autumn, as well as in obtaining and carefully tending the winter shoots.

"This is 'donskaya bezostaya'--a strong type... 'Urozhainaya'--another strong wheat. And this is 'donskaya polukarlikovaya'--an early ripening type, valuable in quality... We have 6 thousand hectares of such winter crops. We think that we will obtain not less than 45 quintals of grain per hectare and sell 25 thousand tons of strong and valuable wheat to the government."

Having completed full mineral nourishment for the roots, the peasants of the Zernogradskiy Rayon are preparing to conduct non-root nourishment by air over 20,000 hectares sown with winter wheat in order to obtain strong grain. The necessary fertilizers and pesticides have been prepared and liquids are being arranged for the preparation of mixtures. The people of Zernograd utilize advanced agricultural methods also for increasing the harvests and quality of spring barley, sowings of which have been significantly expanded. This crop has been sown with valuable seed types on all land areas. Root nourishment of the barley is being carried out.

Just as last year, the operations of this rayon are utilizing the potential for increasing grain production of corn. The land under this crop has been well fertilized and the first pre-sowing planting cultivation has been done.

In every rayon there are kolkhozes and sovkhozes where, thanks to the creative efforts of the specialists and grain growers attempts are made for a simultaneous increase in grain harvests and a raising of their quality. But some operations located near these and working under the same conditions have significantly lower results and their grain sales to the government, especially of hardy and valuable types, have sharply decreased in recent years. Whereas the "Margaritovskiy" Sovkhoz, Azovskiy Rayon, and the kolkhozes "Borets za kommunizm," Morozovskiy Rayon, "Rodina," Oblivskiy Rayon, steadily obtain good harvests of high quality grain, in the surrounding operations grain productivity of the land is considerably less. The same may be said too about the rayons. Of those located in the southern zone, 81 percent of the overall volume of sales

to the government by the Karal'nitskiy Rayon comprised high quality wheat; in the Zernogradskiy Rayon, it was 72 percent, while in the Peschanokopskiy Rayon, it was only 27 percent and in the Azovskiy Rayon, 18 percent. In the same rayons, such as Aksaiskiy Bagaevskiy and Veselovskiy, all the wheat that came to procurement was of low standards.

But there are also good types; more fertilization has occurred; the machine and tractor fleet has increased in operations. With reference to the drought, the managers and specialists of such kolkhozes and sovkhozes try to cover up their errors in conducting grain cultivation, their contraventions of agricultural technology and their inaction in introducing progressive technology and a collective contract into farming. In many operations in the oblast, areas with hardy types of winter wheat that occupied 80 to 90 percent during the last five-year plan have now been reduced by half. In the Belokalitvinskiy, Tatsinskiy, Morozovskiy, Konstantinovskiy and Tarasovskiy Rayons they amount to 13 to 17 percent. But the party, soviet and agricultural organs in these rayons have resigned themselves to such a situation. During the three past years, the oblast fulfilled only 3.5 percent of the plan for procuring hardy wheat.

Increased output of grain fields and the quality of grain in the Don operations will now be closely connected with a strengthening of responsibility and the efficient discipline of each and all who participate in the harvest: grain-growers, managers and operation specialists, workers in agricultural\_chemical services, agricultural aviation and grain products systems. In every link of the grain conveyer, it is imperative to care not about words, but about actions regarding the unconditional fulfillment of plans for production and grain procurement, projected assortment and product quality.

12249

CSO: 1824/371

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### SPRING SOWING OPERATIONS IN BELORUSSIAN SSR REVIEWED

Minsk SEL'SKAYA GAZETA in Russian 20 Apr 84 p 1

/Article: "To Carry Out the Sowing Work In A Rapid and High Quality Manner"/

/Excerpts/ The sowing of spring grain crops has been carried out in the republic on almost one half of the areas allocated. This work has been completed by many farms in Brest and Gomel oblasts. Field operations are unfolding on a mass scale in the central and northern regions of the republic.

#### Operational Review

The spring sowing work is being carried out in an organized and high quality manner in an absolute majority of the rayons and on the farms. The soil is being prepared and the spring crops are being sown in strict conformity with the technological requirements on a majority of the farms in Volkovysskiy, Stolbtsovskiy, Nesvizhskiy, Mozyrskiy, Kamenetskiy, Dyatlovskiy and other rayons.

At the same time, the work has not been organized in all areas taking into account the warm dry weather or the absence of the usual pause between working the soil and the sowing operations. According to information provided by the republic's hydrometeorological service, by 15 April the soil had warmed to 7-10 degrees at a depth of 10 centimeters in a majority of rayons in Vitebsk and Mogilevsk oblasts and to 10-12 degrees in the southern and southwestern portions of the republic. Accordingly, the total amount of positive temperatures was 40-50 degrees in the north and 60-90 degrees in the southern part of the republic. Based upon average data accumulated over a period of many years, such an amount of positive temperatures usually accumulates prior to 5 May. Thus the temperature regime was reached 20 days earlier.

The entire complex of field operations should be carried out with these weather factors being taken into consideration. The plans for spring sowing should be corrected in those instances where corrections were not introduced earlier. Priority importance is being attached to those measures aimed at retaining moisture and organizing daily agronomic control over the ripening of the soil and the quality of all work being carried out.

A study of the status of affairs in the various areas reveals that quite often a large pause is being tolerated between applying organic fertilizer and



Information on the Course of Spring Field Work at Kolkhozes and Goskhozes  
in the Belorussian SSR on 18 April 1984

	Oblasts					
	Brest	Vitebsk	Gomel	Grodno	Minsk	Mogilevsk
Sown (in percentages of plan):						
Spring crops overall	56.3	10.6	48.5	39.0	30.1	14.7
Spring grain and pulse crops	94.9	17.7	92.7	71.8	52.3	27.0
Flax	38.3	0.8	12.2	1.7	8.7	1.9
Potatoes planted (in percentages of the plan)	22.5	0.1	6.5	1.9	1.9	0.2
Top dressings applied (in percentages of the task):						
Winter crops	99.6	55.2	99.0	96.0	91.8	77.2
Perennial grasses	100.0	53.8	99.6	96.0	91.2	73.6
Haying and pasture lands	84.0	39.2	74.8	71.7	65.7	43.8
Organic fertilizers applied during spring sowing (in percentages of task)	86.6	46.9	78.8	69.3	70.2	45.8

Note: Indicators for applying top dressing to haying and pasture lands are furnished following further refinement.

working it into the soil. Such incidents were observed taking place on individual farms in Bykhovskiy, Maloritskiy and other rayons. Proper attention is not being given in all areas to the quality of the work associated with preparing the soil and carrying out the sowing work. The work of supplying all of the potato growing farms with seed and planting machines has not been completed in a number of rayons in Vitebsk Oblast. A requirement exists for enlivening the work directed towards completing the sorting and hot air warming of the potato seed.

The work of repairing thinned out winter crop and perennial grass areas and resowing tracts which perished and also picking up last year's residues is unfolding very slowly. The agronomic service in the various areas, taking into account the need for applying a top dressing to the soils, the predecessor crop arrangements, the soil texture and the availability of seed, should immediately solve the problems concerned with the resowing or undersowing of individual tracts of these crops. In any case, the seed must be placed in sufficiently damp and not overly dry soil. The work of applying the first top dressing to the winter fields, perennial grasses and haying and pasture lands must be completed. Large volumes of this work remain to be carried out in a majority of the rayons in Mogilev and Vitebsk oblasts.

Some rayon associations of Sel'khoztekhnika have not undertaken adequate measures aimed at maintaining a high technical readiness of the machine-tractor pool or of supplying the farms with spare parts.

A chief task of all those participating in the sowing campaign is that of raising the quality of the work, increasing the work tempo and achieving more

complete use of the daylight portion of the day for sowing and preparing the soil and also of the nighttime period. A proper work atmosphere must be created in each collective in the interest of achieving highly efficient use of each unit, tractor and sowing machine.

7026

CSO: 1824/405

## MAJOR CROP PROGRESS AND WEATHER REPORTING

### BRIEFS

WINTER CROP SOWING COMMENCES--The kolkhozes and sovkhozes in the Belorussian forest district have commenced their mass sowing of winter crops. This year rye and wheat will be grown on approximately 240,000 hectares in Brest Oblast. The complex technological detachments have moved 2,500 sowing units out onto the fields. The best predecessor crop arrangements have been selected for the winter crops. Almost one third of them are being grown following fodder lupine and other leguminous and perennial grasses. Compared to last year, the amount of organic fertilizer applied to the fields has been increased by a factor of 1.4. All of the seed is from regionalized varieties and it has been improved to 1st class of the sowing standard. The prolonged dry weather has complicated the carrying out of the preparatory and sowing work. Under these conditions, the farmers are carrying out in a very strict manner the recommendations of the scientists and the agricultural requirements. The oblast's farms expect to complete their sowings of winter crops prior to 18 September. The quality of the work is being monitored by special committees consisting of leading production workers, specialists, deputies to local soviets and people's controllers. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 9 Sep 83 p 1/ 7026

CONCERN FOR SOWING QUALITY--With each passing day, the sowing of winter crops is moving further and further to the south. Many farms in Vitebsk Oblast have already completed this work, while sowing continues in the norther rayons of Mogilev and Minsk oblasts. As of 1 September, 1,411,000 hectares of soil throughout the republic had been prepared for the sowing of winter crops against a plan calling for 1,418,000 hectares and organic fertilizers had been applied in the amount of 8.65 million tons against a plan calling for 8.5 million tons. Rye and wheat have been sown on 144,500 hectares. The chief concern at the present time is the quality of the sowing work. It must be ensured by yourselves -- the operators of the machines. The correct operation of the sowing units -- the thorough leveling off and packing of the soil, the placement depth for the seed and observance of the sowing norms -- is dependent upon the degree of attention and diligence you display in carrying out your work. And all of the above factors provide a reliable guarantee for a good harvest. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 2 Sep 83 p 1/ 7026

OPTIMUM SOWING PERIODS--The optimum sowing periods for winter crops in the northern regions of the republic end on 10 September; the central regions -- on 12 September; southwestern -- on 18 September. During the first half of the mentioned periods, winter rye should be sown using diploid varieties and during the second -- tetraploid. In view of the conditions existing today, the

following actions should be taken: considering the reduced supplies of moisture in the soil, the pre-sowing and post-sowing packing of areas should be carried out on a mandatory basis. In the process, special attention should be given to the ideal leveling off of the fields. Depending upon the moisture content and the soil fertility level, the seed sowing norm should be increased by 10-15 percent of the average sowing norm. Thorough treatment of the seed using disinfectants should be organized and in regions where the sowings have been subjected to the effects of snow mould -- using Fundazol. Considering the extreme sowing conditions, the system of fertilization for the winter crops should call for them to be sown together with Nitrophoska on weakly fertilized and low productivity soils, with the application dosage being based upon the phosphorus content. Grain growers! We are countering the unfavorable weather conditions with accurate fulfillment of all of the technological elements associated with the sowing of winter crops and with high quality field operations. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 7 Sep 83 p 1/ 7026

BELORUSSIAN WINTER CROP SOWINGS--Today the optimum periods are at hand for sowing winter crops in the republic's northern regions. In all, the grain growers of Belorussia must sow their crops on an area of 1,418,900 hectares. Only if they carry out their complex of autumn sowing operations in a timely manner and on a high quality basis will the farms be able to achieve the planned yields for farming output and make a worthy contribution towards carrying out the Food Program. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 25 Aug 83 p 1/ 7026

CROP PROTECTION AGAINST PESTS--The weather conditions during September are favorable for the development of the Swedish fly and the leafhoppers. An intensive flight by the Swedish fly and the laying of eggs by this pest are being observed at the present time. In some rayons in Vitebsk, Mogilevsk, Gomel and Minsk oblasts the number of Swedish flies is high and exceeds the threshold figure. At the present time, the winter crops over a large portion of the republic's territory are in a vulnerable stage -- the seedling stage. Plant damage caused by the Swedish fly and leafhoppers has already been observed. The farm specialists and specialists attached to the plant protection and weather forecast services must inspect the crops on an urgent basis and those tracts on which there are more than 25-30 flies per unit of counting should be treated with insecticides. The norms for applying these insecticides were pointed out in the 14 September 1983 issue of SEL'SKAYA GAZETA. /by Ye. Kolonitskaya/ /Text/ /Minsk SEL'SKAYA GAZETA in Russian 24 Sep 83 p 3/ 7026

PEAT BOG OPERATIONS--Distinct from other soils, peat bogs thaw out more rapidly during the early spring period. Thus a grain grower must carry out an entire complex of operations on them in a short period of time and in a high quality manner. This is not the first year that our administration has operated drained peat bog soil. The overall area of such soil in three rayons exceeds 4,000 hectares. On a majority of the farms in Lidskiy, Iv'yevskiy and Voronovskiy rayons, the snow had disappeared from the fields by the middle of March. Dry sunny weather during the day and a firm frost at night had lowered noticeably the water level in the soil, the drainage network and in the accumulation ponds and reservoirs. Thus this year we are not expecting severe spring flooding. Nevertheless, the land reclamation operations personnel and the farmers removed the backwater from canals, hydraulic engineering

installations, bridges and culverts. At least one specialized team was created at each farm having reclaimed land, with bulldozers and light mechanization equipment being made available to these teams. Spring field operations are in full swing out on the peat bogs. It is important to ensure that, commencing with the very first days of work, there will be no interruptions in the operation of the field production line. /by G. Luk'yanchik, chief of the Lidskiy Inter-rayon Administration for Land Reclamation/ /Excerpts/ /Minsk SEL'SKAYA GAZETA in Russian 11 Mar 84 p 1/ 7026

FAVORABLE SOIL CONDITIONS--The warm weather has brought about the active thawing out of the snow and the drying out of the soil. In the south and in a number of western regions of the republic, favorable conditions have been created for carrying out work on peat bog soils. So as not to overlook the optimum periods, the farm agronomists must monitor the thawing of the peat bogs on a daily basis. An application of mineral fertilizer should be organized for the as yet frozen base and once the peat bog thaws to a depth of 8-10 centimeters -- the sowing of early grain crops should be carried out. In view of the shortage of autumn and winter supplies of moisture, the lock-regulators for accumulating water in canals should be closed in a timely manner. The release of thaw waters from the flooded winter crop plantings should be organized in an efficient manner and once the upper layer has dried out the winter crop plantings should be packed. /Excerpts/ /Minsk SEL'SKAYA GAZETA in Russian 11 Mar 84 p 1/ 7026

AGRICULTURAL AIRFIELD COMPLEXES--Field preparation work in behalf of the spring crops has commenced on farms in the southwestern portion of the forest district. Although frosts are still occurring at night, nevertheless the snow has disappeared completely in five rayons. The aircraft of agricultural aviation fly over the tracts of drained peat bogs. The winged assistants of the grain growers are applying mineral fertilizers. At the Kolkhoz imeni Kirov in Maloritskiy Rayon, spring "navigation" has been opened by senior pilot at the Brest Aviation Enterprise Petr Ivanovich Datsuk. Taking advantage of the favorable weather, he is carrying out 25-30 flights daily. New airfield complexes have been created at a number of farms in the forest district for carrying out the sowing work. In addition to asphalted take-off and landing strips, the tracts of land reclaimed from swamps at the sovkhoses Vozrozhdeniye in Gantsevichskiy Rayon and XXIV S'yezd KPSS in Pinskiy Rayon have been used for erecting warehouses for the storage of fertilizers and fuel and also for building homes for the pilots. Today there are 24 agricultural airfield complexes in the oblast. Each one of them services several farms. This year the collective at the Brest Aviation Enterprise will apply mineral fertilizers and a top dressing to the winter crops, meadows and pastures on an area of more than one half million hectares. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 10 Mar 84 p 1/ 7026

AVIATION ASSISTANCE FOR FARMERS--The pilots of the Western Siberian Civil Aviation Administration are furnishing the Belorussian grain growers with reliable assistance. On the fields of our republic they are applying mineral fertilizers in behalf of the spring sowing work and they are also applying top dressings to the winter crops, perennial grasses, meadows and pastures. At home the pilots and navigators are attending lecture courses on agricultural chemistry and they are acquainting themselves with the geophysical features of the areas in which they will be working. All of this is making it possible

for them to carry out their work rapidly and in a high quality manner. "During the busy spring period, 45 crews from Omsk, Novosibirsk, Barnaul, Tomsk and Novokuznetsk operate in our republic" stated the chief of the Department for the Use of Aviation in the National Economy of the Minsk Combined Aviation Detachment A.V. Stepanovich, "Spring has still not reached the Siberian krays. Thus the agricultural aviators decided to furnish assistance to the Belorussian farmers. They are servicing farms in Minsk, Gomel and Brest oblasts. This year, hundreds of aircraft of agricultural aviation are operating in the skies over Belorussia. All of the aircraft are equipped with wide-swath dusting machines, which make it possible to raise labor productivity by 20 percent. Following the example set by the farmers, the pilots are working throughout the entire light portion of the day. The crews of agricultural aviation intend to tend the crops on an area of two and a half million hectares. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 19 Apr 84 p 1/ 7026

20 TONS PER HECTARE--Minsk--The arable land in Belorussia has been fertilized more generously than usual for the forthcoming sowing campaign. The machine operators have delivered an average of 20 tons of organic material per hectare in behalf of the spring crops. No less than 5 million tons of such fertilizer have yet to be delivered prior to the commencement of the mass field operations. /Text/ /Moscow TRUD in Russian 17 Mar 84 p 1/ 7026

RYE, WHEAT TOP DRESSING--Minsk--The aircraft of agricultural aviation have once again taken to the air above the green carpet of winter crops in the southern regions of Belorussia. They have commenced applying a second top dressing to the rye and wheat. /Text/ /Moscow TRUD in Russian 28 Apr 84 p 1/ 7026

ORGANIC FERTILIZER PLAN--Minsk, 13 Mar--The farmers of Belorussia have fulfilled their plan for supplying organic fertilizer one month ahead of schedule. They have delivered more than 58 million tons to the fields. The March period of warm weather accelerated the work noticeably. The detachments of Sel'khozkhimiya and Sel'khoztekhnika, created within the framework of RAPO /rayon agroindustrial association/, are providing the kolkhozes and sovkhoses with efficient assistance in transporting the farmyard manure and compost. Seven million more tons of organic material will be delivered to the spring crop fields prior to the beginning of the sowing campaign. /by V. Legan'kov/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 14 Mar 84 p 1/ 7026

AVIATORS AT WORK--Mineral fertilizer has been applied in behalf of the spring grain crops on the first 20,000 hectares, a top dressing has been applied to 4,000 hectares of winter crops and fertilizer has been scattered on 9,000 hectares of perennial grasses at kolkhozes and sovkhoses in Gomel Oblast. The pilots of agricultural aviation of the local aviation enterprise are deserving of credit for having accomplished the above. The farms in Loyevskiy and Svetlogorskiy rayons are carrying out this work better than others. The AN-2 commanders V. Dovgal' and N. Kovalenko are carrying out 35 flights daily and this is considerably greater than the task. The specialists have concluded that the quality of the top dressing being applied is very good. /by V. Kuz'menkov, senior engineer for the use of aviation in the national economy of the Gomel Aviation Enterprise/ /Text/ /Minsk SEL'SKAYA GAZETA in Russian 8 Apr 84 p 1/ 7026

GRODNO OBLAST SOWING OPERATIONS--As of 18 April 1984, only 39 percent of the spring crops called for in the plan had been sown in Grodno Oblast. This work is being carried out better than other farms by the kolkhozes and goskhozes in Berestovitskiy, Dyatlovskiy, Grodnenskiy, Mostovskiy, Volkovysskiy, Zelvenskiy, Lidskiy and Shchuchinskiy rayons, where the sowing of spring grain and pulse crops is being carried out on the last hectares. Here they have commenced the mass sowing of vegetables, root crops, the planting of potatoes and they are preparing the soil for flax and buckwheat. The soil has ripened in all areas for the sowing of grain and pulse crops in the northern zone of the oblast. This work is being completed by the Rytan'skiy and Kemelishskiy sovkhoses and by the Kolkhoz imeni Karl Marks in Ostrovetskiy Rayon. The daily increase in sown areas in Ostrovetskiy Rayon is 14-17 percent and in Ivyevskiy Rayon -- 19. At the same time, only 3 percent of the fields are being sown daily in Oshmyanskiy Rayon and 5 percent in Smorgonskiy Rayon. Mass sowing operations on farms in the mentioned rayons are being held up by a shortage of prepared areas. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 19 Apr 84 p 1/ 7026

STERN REQUIREMENTS IMPOSED--Warm and dry weather prevails in all areas throughout the republic. The moisture supplies in the soil are lower than the average values recorded over a period of many years. A broad front for the carrying out of a complex of field operations has opened up on almost all of the farms. The sowing of spring grain crops has commenced in all of the oblasts. However the tempo of the sowing work today is not in keeping with the existing situation. The specialists and leaders at a number of farms have not organized their work taking into account the specific peculiarities of the current spring, the field work rates and the work volumes in terms of many items are lagging behind the level for last year. In view of the existing conditions, the following requirements have been imposed upon the kolkhoz and sovkhoses leaders and specialists:--to immediately include in the work all equipment associated with hauling and applying organic fertilizers to the soil, the pre-sowing preparation of the soil and the sowing of grain crops; --to organize around-the-clock technical servicing for the machines in order to ensure their use on a highly productive basis and hot food for those participating in the sowing campaign; --in view of the deficit of moisture in the soil, to prevent any pause from taking place between the preparation of the areas and the sowing; --to accelerate the rates for applying top dressings to the winter crops and perennial grasses. Sowing areas which perished must be resown immediately and tracts with thinned out plant stands must be repaired. In the process, weak sowings must be given a top dressing on a priority basis; --the burning of last year's post-harvest residues on perennial grasses, haying or pasture lands, especially those having an undersowing of clover, is categorically forbidden. This illegal method sharply weakens the cereal grass plants and leads almost to complete destruction of the clover. Grasses with an undersowing of clover should ideally be packed using flat rollers; --full advantage must be taken of the warm, sunny weather and the sun-drying and light hardening of seed potatoe tubers must be organized in all areas; --the limited supplies of moisture persistently demand the strict observance of all of the technological requirements for preparing the soil, especially leveling it off in a diligent manner and the mandatory use of light rollers with a sowing unit. The timely and efficient carrying out of all technological operations and high quality work are making it possible to create the best conditions for the growth and development of the agricultural crops. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 11 Mar 84 p 1/ 7026

SOWING OPERATIONS REVIEWED--Gomel Oblast possesses the potential for sharply correcting the status of affairs and eliminating the shortfall in farming products. The prerequisites for this are as follows: a considerable increase has taken place in organic fertilizer procurements on farms and in the rayons, the condition of the equipment is better than in past years and high quality seed is available for all of the crops. A great deal depends upon the amount of attention being given to the problems of efficiency and quality and the efficient use of the increasing economic potential. The conditions out on the spring fields persistently require an acceleration in the entire complex of sowing operations. The slightest delay can result in losses in moisture. Multiple unit broad swath units and other innovations are being employed in all areas throughout the oblast for preparing the soil. Over the past few days, 19,000 and more hectares have been sown in grain crops throughout the oblast. In Zhitkovichskiy Rayon, against a task calling for 600 hectares, the seed has been planted on an area of 700-750 hectares. Against a plan calling for 19,000 tons of compost daily, 21,000-22,000 tons are being applied here each day. At team at the Zhitkovichskiy Sovkhoz consisting of four machine operators is applying 900-1,000 tons of organic fertilizer daily. By no means is this same productivity evident in all areas. The sowing work must be carried out in a more accelerated manner in the northern rayons -- Rogachevskiy, Buda-Koshelevskiy and Zhlobinskiy. Naturally, against such a background those farms which are slow in carrying out their work, employ antiquated methods or fail to display proper concern for their tasks do not appear very well. Thus it comes as no surprise and in fact it is rather vexing to discover that with the passage of time even some of the leading farms are beginning to display this same type of indifference. Those farms which have completed sowing their grain crops have commenced planting their potatoes in light-textured soils. The sowing campaign in Gomel Oblast has entered a decisive stage: the work of applying fertilizers, sowing row crops and planting potatoes is in full swing. A fine work tempo has been achieved and a chief concern is that of maintaining it and reinforcing the results already realized through realistic actions. /Excerpts/ /Minsk SEL'SKAYA GAZETA in Russian 18 Apr 84 p 1/ 7026

GOMEL OBLAST SPRING PLANTING--We have been informed by the agricultural administration of the oblast executive committee that as of 17 April spring crops had been sown in the oblast on 218,879 hectares, or 47.4 percent of the overall area. Grain and pulse crops have been planted on 192,823 hectares, or 89.8 percent of the planned area. The majority of the rayons have commenced planting potatoes; the tubers have been placed in the soil on 2,686 hectares. The leaders in carrying out this work are the grain growers in Shitkovichskiy and Petrikovskiy rayons, where the tubers have been planted on 19.8 and 17.5 percent of the planned areas respectively. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 18 Apr 84 p 1/ 7026

CSO: 1824/405



## LIVESTOCK FEED PROCUREMENT

### IMPROVEMENT OF RSFSR FEED STORAGE FACILITIES CALLED FOR

Moscow SOVETSKAYA ROSSIYA in Russian 31 Mar 84 p 2

/Article by V. Zlobin, Saratov Oblast: "Around the Tower"

/Text/ I became acquainted with this unusual tower on the Rassvet Sovkhoz in Krasnokutskiy Rayon. Its silvery cupola gleamed behind the cow sheds and silage trenches. The new storage facility was one-half lower, but twice as large in diameter, as compared with the BS-9.15 towers, which were often seen on sovkhozes and kolkhozes and were the subject of many disputes. In particular, specialists wrote about the shortcomings of the BS-9.15 on the pages of SOVETSKAYA ROSSIYA as long ago as 1980.

The new tower promises good prospects for feed procurement officials. Anatoliy Andreyevich Shokhin, director of the sovkhoz, discusses the advantages of its design convincingly and with inspiration. This is the creation of the scientists at the Saratov Institute of Mechanization of Agriculture. The tower appeared there about 5 years ago and immediately attracted the attention of experts and specialists connected with animal husbandry and feed production.

Having heard a great deal about the merits of this novelty, I was interested in finding out why green fodder was still not placed in the tower, but next to it, in trenches. The elderly face of Anatoliy Andreyevich became stern:

"It is not ready--some mechanism was not finished."

I looked for one of the "fathers" of this impressive structure. In Saratov at the Institute of Mechanization of Agriculture, when the officials learned about the purpose of my visit, they told me: "You should see Semenov, but he is in the hospital. This tower has ruined him. Financing for this work has been discontinued at the concluding stage."

In a hospital robe, perching himself on a bedside table, V. Semenov composed an urgent telegram to Moscow.

"We ourselves put a spoke in our wheel," Vasilii Ivanovich got excited. "We established a laboratory, but were loaded with different work."

In order to better understand V. Semenov's emotions, we will make a small digression. It cannot be denied that today the problem of improvement of feed storage facilities is very acute and urgent. Even where people have learned to grow a sufficient amount of fodder, they do not know how to preserve it. Almost one-half of the harvest of the country's fodder field does not reach animals and during harvesting and storage is transformed into ballast.

The engineering thought in our country and abroad ever more persistently turns to the tower type of storage. That is why towers have appeared at the sections of many kolkhozes and sovkhozes. There are about 100 of them in Saratov Oblast alone. One of the serious and fundamental shortcomings of towers, as of other storage facilities, is connected with losses during the opening of capacities, when feed is beginning to be used. Air penetrates into storage facilities, which leads to the spoilage of readily oxidized products. First of all, the most valuable product--carotene--is lost. Losses reach 10 percent.

Those that visited farms and saw the very high--the size of a 10-story house--cigars, rightfully wondered: Why such a height? It is difficult to load, unload and, in general, to service such a bulky and cumbersome facility. Should it not be lower and wider, that is, bigger in diameter? It turns out that with the present technology of feed unloading it should not. After all, the bigger the diameter, the bigger the opening of the surface of the feed mass during unloading. This means that more of it is spoiled. This made it necessary to build small-diameter, but high, towers.

It was not so simple to get out of this circle. The scientists at the Saratov Institute of Mechanization of Agriculture imeni M. I. Kalinin embarked on the elimination of the shortcomings inherent in the storage facility of the tower type. Candidates of Technical Sciences V. Semenov, Yu. Volkov, I. Ulanov and other specialists developed a new tower design and a method of unloading its content from it. The essence of this novelty lies in the fact that feed can be taken out of the storage facility without disrupting the gaseous medium in it, that is, without the access of fresh air. Thus, the 10 percent of the feed, whose loss was previously tolerated as an inevitability, is preserved. Second, it has become possible to lower the height and to increase the diameter of a feed storage facility and on this basis to lower material intensiveness by almost one-half and capital expenditures per cubic meter of the volume, from 17 to 8 rubles. If we take into consideration that the average modern farm needs feed storage facilities of a volume of tens of thousands of cubic meters, it is not difficult to see what advantage this promises for the national economy.

Thus, a tower differing in its highly advantageous parameters from series towers was built on the left bank of the Volga on the Rassvet Sovkhoz. The same units as those manufactured by combines for its series models were used in construction. Only much fewer ones were needed. The authors of the project were concerned with a greater hermetic sealing of walls, with the space under the cupola and with everything that should sharply reduce feed losses and improve the quality of preservation. Now it remains to develop the technology of loading and unloading. This is not a simple matter. Taking into consideration that in the country many institutes and special design offices worked on appropriate mechanisms, the people of Saratov had the right to expect support. We will see below what shape this assistance took.

In 1979 the specialists of scientific research institutes and of the Main Administration for Mechanization of Animal Husbandry Farms--Mekhzhivelektro of the USSR State Committee for Supply of Production Equipment for Agriculture--became interested in the work of the residents of the Volga Area. Representatives of the Union and republic committees of the State Committee for Supply of Production Equipment for Agriculture and of Rosbashnyaspetsstroy and specialists of Union scientific research institutes and of the Frunze Technological Institute for Feed Getting Machines arrived unexpectedly at Krasnyy Kut at the end of May of the same year. Having familiarized themselves with the novelty with their own eyes, those gathered held an interdepartmental conference, at which they admitted that the "work of this institute deserves attention and it should be supported." A proposal on the organization of a sectorial laboratory for improvement in feed storage facilities of the tower type was approved. The USSR Ministry of Higher and Secondary Specialized Education and the USSR Ministry of Agriculture permitted the establishment of such a laboratory. In 1 year such a laboratory was established by the joint order of the USSR minister of agriculture and the chairman of the State Committee for Supply of Production Equipment for Agriculture. Financing was entrusted to the State Committee for Supply of Production Equipment for Agriculture of the republic, to which the latter gave its consent.

However, the joy of the residents of the Volga Area was short-lived. As soon as the laboratory was established, it was separated from the Krasnyy Kut creation and forced to engage according to an accelerated plan in a so-called feeder for ... the series BS-9.15 tower. This work not characteristics of the laboratory and contradicting the order took up all of 1980 and one-half of 1981. However, the trouble around the series variant did not end there. It became obvious that the BS-9.15 lacked not only an improved loader, but an unloader as well. At the beginning of 1981, when drawing up a contract, the Rosbashnyaspetsstroy Administration set for the laboratory the task of developing an unloader and, as A. Murav'yev, deputy chairman of the State Committee for Supply of Production Equipment for Agriculture expressed himself, in general, of engaging in the rehabilitation of the BS-9.15 tower. Look, there was failure in Saratov, we objected to this design and developed a new one, which you approved. Let us finish it. A shout followed as an answer: Those that pay money set the tune. The signing of the contract was delayed.

In the spring of 1982 the results of the work of the sectorial laboratory were examined at the scientific and technical council of the republic State Committee for Supply of Production Equipment for Agriculture. All head scientific research institutes, which sent conclusions, positively evaluated the new direction in the work of the residents of the Volga Area. However, in the decision of the council at the insistence of A. Murav'yev, who presided at it, it was noted that the laboratory did not work sufficiently on an improvement in the series tower. It was also indicated that the laboratory should engage in an improvement in the technological equipment of the old tower. And what about the new storage facility? Is work on it again pushed to the background?

A few days ago at the all-Union economic conference on problems of the agro-industrial complex special attention was paid to the development of agricultural machine building and to the saturation of kolkhozes and sovkhoses with

sets of new-generation machines. Serious criticism was addressed at the Ministry of Tractor and Agricultural Machine Building and the Ministry of Machine Building for Animal Husbandry and Fodder Production. It also has a direct relationship to the scientific organizations connected with these problems, that is, the State Committee for Supply of Production Equipment for Agriculture and the USSR Ministry of Agriculture.

We shall state openly that the republic State Committee for Supply of Production Equipment for Agriculture handled the "new direction" in a rather distinctive way. In the conclusion of the scientific and technical council it was noted that it was promising, but belonged to the subjects of the Ministry of Agriculture and that it was necessary to ask the USSR Ministry of Agriculture and the USSR State Committee for Supply of Production Equipment for Agriculture to examine the problem of the transfer of the laboratory to the authority of the country's Ministry of Agriculture and to determine the procedure of financing its operations of problem and long-term importance.

How is that? During the organization of this laboratory the RSFSR State Committee for Supply of Production Equipment for Agriculture has agreed to finance promising work and now a departmental barrier has arisen? At the end of last year V. I. Semenov, director of the laboratory, was again invited to Moscow. A special decree, which again stressed the urgency and importance of the direction in the work of Saratov scientists, was adopted at a meeting at the All-Union Academy of Agricultural Sciences imeni V. I. Lenin. If this is so, is it not time to finally eliminate the artificial obstacles on the path of their work?

Improvement in feed storage facilities is one of the top-priority tasks of such an important sector as feed production. Of course, we must not forget the already built, although perhaps not quite successful, series BS-9.15 towers. However, nor must we stop at them and permit departmental fetters to stifle the search.

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## LIVESTOCK

UDC 631.15:33]:636.22/.28.034

### PRODUCTION DATA OF DAIRY COMPLEXES ANALYZED

Moscow ZHIVOTNOVODSTVO in Russian No 2, Feb 84 pp 37-39

[Article by A. I. Marinich, head of the milk-production department of the USSR Main Administration for Animal Husbandry Products: "Results of the Efforts of Dairy Complexes"]

[Text] The systematic transition of dairy cattle breeding and feed production to industrialization, which is being implemented in accordance with party and government decrees, is having a positive effect in the area of increased economic efficiency in these sectors, and is providing a reliable basis for expected future gains in production.

In the 12 years since the inception of the CPSU Central Committee and USSR Council of Ministers decree, "On the Growth of Animal Husbandry Production Toward Industrialization," (1971) new construction and the renovation of existing farms have brought on line 2272 state, kolkhoz, and joint-farm complexes for milk production with an overall holding capacity of 1,709,000 cattle stalls, and 202 complexes for raising heifers with 629,000 stalls.

During the 10th Five-Year Plan, 11.3 million tons of milk was marketed and 645,000 heifers were raised to finish by the state, kolkhoz, and joint-farm complexes. In 1982, milk production in the complexes amounted to 6.1 percent of the total volume of such production on farms of the state and kolkhoz sector. The complexes have steadily increased milk production on an annual basis. Thus, in 1982, 571,000 tons, or 18 percent more than the 1981 level, was produced. Basic indicators for the operations of complexes in individual republics during 1982 are shown in the table.

The productivity of cows in 1982 totaled 2619 kg, which was 416 kg, or 19 percent more, than on the nation's kolkhozes and sovkhoses; output per man-hour was 1.6 times higher, and calf-production per 100 cows was up by 2 calves. The best complexes in the country obtain 4000-5000 kg of milk per cow with a labor expenditure of 1.5-2.5 man-hours per quintal, while milk production per individual operator approaches 500 tons and more. In Moscow Oblast alone, 34 milking-machine operators obtain a yield of more than 500 tons of milk per year. And, at the complex on the sovkhos "Ruch'i" in Leningrad Oblast, using the loose-housing type of maintenance, a single milking-machine operator obtained 794 tons of milk with an average yield per cow of 4415 kg. An operator's production in this complex represents a profitability level of 35 percent. Gross production per individual worker amounted to 25,000 rubles.

Productivity Indicators For Livestock Complexes  
1982 Milk Production

Republic	Number of Complexes	Average Milk Yield Per cow (kg)	Calf Production Per 100 cows	Production Cost Per 1 ql milk (rubl)	Direct Labor Expenditure Per ql milk (man-hours)
RSFSR	1083	2551	79	34.1	5.7
Ukrainian SSR	160	2300	84	26.7	6.4
Belorussian SSR	39	2500	81	27.5	4.7
Uzbek SSR	100	2950	79	27.8	7.9
Kazakh SSR	93	2065	66	36.5	7.1
Georgian SSR	18	1928	66	48.0	8.6
Azerbaijan SSR	30	2166	70	29.7	9.1
Lithuanian SSR	42	3059	88	25.6	4.6
Moldavian SSR	76	2835	90	31.4	8.6
Latvian SSR	202	2754	82	27.2	3.9
Kirghiz SSR	82	2830	80	30.1	7.0
Tajik SSR	67	2550	85	30.3	9.1
Armenian SSR	3	3093	72	31.9	5.5
Turkmen SSR	4	2233	76	35.5	8.1
Estonian SSR	273	3308	80	25.1	3.2
Nationwide	2272	2619	80	31.6	5.7

At the "Bril'yanti" complex on the kolkhoz "Adazhi" in the Latvian SSR, 4768 kg of milk was the average yield per cow during the year, using different types of stall-maintenance arrangements. The load per individual milking-machine operator here was 120 cows. Labor expenditures per quintal of milk totaled 1.7 man-hours, and each operator produced 450 tons of milk during the year. Individual automated control systems for regulating milk production have been introduced at the complex, as well as electronic methods for analyzing zootechnical data and developing early diagnoses of mastitis.

At the complex on the kolkhoz imeni Lenin in Novomoskovskiy Rayon of Tula Oblast, a yield of 5201 kg of milk was obtained from each of the 1200 cows through the skillful use of industrial technology and a combination of loose-housing and stall-maintenance of livestock. Labor expenditures here amounted to 1.5 man-hours per quintal of milk, while feed consumption totaled 110 feed units. The profitability level for milk production at the complex reached 91.8 percent, and a 724,000 ruble profit was realized.

Specialists from the Latvian SSR animal husbandry research institute, working with the (Riga) GSKB[state buro for special design], have developed and introduced at the "Yudazhi" complex a promising method of stall maintenance utilizing the most advanced automated technological equipment of Soviet design. This system provides annual milk yields from the Latvian Brown breed of more than 4500 kg, and ensures the reduction of labor expenditures to 1.5 man-hours per quintal of milk.

Of the 2272 dairy complexes operating within the country in 1982, more than 600 provided yields upwards of 3000 kg of milk per cow; yields from such complexes were as follows: "Chinaz" in the Uzbek SSR--4831 kg; "Yudazhi" in the Latvian SSR--4701 kg; the complex on the sovkhos "Kalinovskiy" in Moscow Oblast--5435 kg; at the complexes "Koryakovskiy" in Kostroma Oblast, "Vorsino" and "Tokarevskiy" on the sovkhos imeni Lenin in Moscow Oblast, "Tsentral'nyy" in Leningrad Oblast, imeni 22nd CPSU Congress in the Uzbek SSR, "Malayeshtskiy" in the Moldavian SSR, "Rossiya" in Chelyabinsk Oblast, "Vyayana" in the Estonian SSR, imeni Strel'nikov in the Kirghiz SSR, "Shilovskiy" in Sverdlovsk Oblast, and at many others where problems relative to the feed-base have been fully resolved and technological requirements are strictly observed, yields of from 4500 to 5500 kg of milk per cow are obtained from one year to the next. Additional tens and hundreds of dairy complexes in all republics of the nation provide examples of similar such high achievements.

In 1983 as well, impressive results were obtained in milk-producing complexes. Dairy cow productivity surpassed 2800 kg. Particularly high indicators were seen at the livestock complexes of Estonia, Latvia, Moldavia, and the Ukraine, as well as in the Krasnodar and Maritime krays, Vladimir, Ivanovo and Tula oblasts.

At the same time, it must be pointed out that at several complexes, where there are still unresolved feed-base problems, the proper importance is not being attached to restocking the herds with animals which meet the requirements of industrial technology, proper technological discipline is not being observed, and stockbreeding staffs are poorly selected.

It need only be noted that 6.2 percent of industrial-type stockbreeding enterprises still show dairy-cow productivity of less than 1500 kg. From year to year, dairy-cow productivity remains low at complexes in the union republics of Georgia, Azerbaijan and Kazakhstan, as well as in a number of RSFSR oblasts.

On many farms having dairy complexes, by far the greatest amount of cropland is devoted to grain-based and industrial crops, while the make-up of the croplands is not adjusted for use with fully operational complexes, and there are instances where land improved for purposes of feed production is not being used in the manner intended. As a result, complexes in a number of oblasts of the RSFSR and the union republics are assured of only enough self-produced feeds to meet 60-70 percent of the demand, while on certain farms this indicator is lower still. Thus, the "Verkhne-Yaroslavskiy" dairy complex in Tambov Oblast, an 800-stanchion facility put in operation back in 1976, each year provides for only 40-60 percent of its own total feed requirements. Here, even in the summer period, the daily ration does not exceed 6-7 feed units. The yield per cow in 1982 amounted to only 1056 kg.

In 1976, the "Novoil'skiy" complex in Kalinin Oblast, with facilities for 800 cows on loose-housing maintenance, became operational. In 1982, a total of 2200 feed units was consumed per cow. The annual yield per cow amounted to 1305 kg of milk.

In order to improve the operation of these complexes and make them cost-effective, we must eliminate as quickly as possible the operational shortcomings, and direct our efforts toward the creation of a strong feed-base and the training of highly skilled personnel.

An analysis of the operations of dairy complexes shows that the optimal dimensions of such operations is nonuniform in different regions. For example, in the RSFSR and the Ukrainian SSR, the average indicator for milk productivity for 400-800-cow complexes totaled 2783 and 2794 kg of milk respectively.

At all 100 complexes in the Uzbek SSR, the 1982 yield totaled 2950 kg, while the highest yield of 3204 kg was achieved at complexes having facilities for 1200-1600 cows with an 11.8 percent profitability level.

At the same time, at 23 complexes in the Kazakh SSR with the same capacity (1200-1600 cattle stalls), the yield per cow amounted to only 2018 kg, whereas the yield at complexes of 400-800 stall capacity, was 2524 kg. The best indicators belong to complexes with facilities for 400-800 cows and in the Kirghiz SSR.

Thus, it becomes apparent that excellent indicators of livestock productivity, with high profitability and low labor expenditures, accrue to those places which, along with the creation of huge stockbreeding enterprises, have restructured their feed-base in time to meet the needs of animal husbandry, and made an intelligent approach to the solution of continuing problems.

Consequently, those complexes which make efficient use of modern equipment, strictly observe technological requirements, utilize progressive methods, introduce highly mechanized and automated processes, and select and train personnel in a timely and skillful manner, show sufficiently high indicators, and the production of milk in such complexes takes place in a highly efficient and profitable manner.

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ECONOMIC PROBLEMS OF RSFSR KOLKHOZES, SOVKHOZES DISCUSSED

Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian No 2, Feb 84 pp 21-22

/Article by Yu. Pekhterev, deputy chief of the Main Economic-Planning Administration of the RSFSR Ministry of Agriculture: "Urgent Tasks of Economists"

/Text/ In 1983 higher purchase prices of agricultural output began to be in effect and markups on them were introduced for low-profitability and unprofitable farms. A total of 10.1 billion rubles were allocated for these purposes. Every kolkhoz and sovkhov was given the opportunity of engaging in expanded reproduction with its own funds.

That is why today, as never before, it is important to keep count of money accurately and conscientiously, to manage economically and to observe the strictest labor discipline.

Zonal conferences of ASSR ministers of agriculture, chiefs and their deputies for economy of the administrations of agriculture of kray and oblast executive committees and of the entire economic service of the regions of the Russian Federation were devoted to problems connected with an increase in the economic efficiency of production, economy, thrift and an efficient utilization of capital investments. As the participants in the conferences noted, on many kolkhozes and sovkhovs intrafarm cost accounting did not become the spring that would move the entire mechanism of management toward the strengthening of their economy. One-fifth of the kolkhozes and sovkhovs are ending the agricultural year with losses.

On some of them production organization proved to be so low and production costs so high that even the establishment of new purchase price markups at the maximally permissible rate--75 percent--did not enable farms to become profitable.

During a careful examination of the state of affairs it was disclosed that many managers of farms and agricultural bodies were convinced that the reason for the increase in production costs and, therefore, in production unprofitableness lay in the cost of goods delivered to rural areas and of the services rendered to kolkhozes and sovkhovs, a cost that increased in the last few years. This opinion is fundamentally wrong. The main reason lies in the underestimate of economic methods of production management by managers and specialists.

As a result, on many kolkhozes and sovkhozes intrafarm cost accounting, to put it mildly, has not yet become the basic method of management and the rich experience in the use of cost accounting by kolkhozes, sovkhozes and entire rayons is not utilized in a number of oblasts, krays and autonomous republics. At the same time, practice shows convincingly that the use of cost accounting contributes to the strengthening of the public economy.

Let us take Pravdinskiy Rayon in Kaliningrad Oblast. In 1966 its farms began to work out and present cost accounting assignments to individual brigades. As experience accumulated, the advanced form of production organization began to be used in large production subdivisions and sectors. Intrafarm cost accounting statutes have now been developed and are in effect on all kolkhozes. As a result, during the years of the 10th Five-Year Plan the volume of agricultural output increased by 20 percent and during 3 years of the 11th Five-Year Plan, by another 12. During all this time kolkhozes operated without losses, having a profitability of 10 to 23 percent.

Cost accounting is actively being introduced on kolkhozes and sovkhozes in Stavropol Kray. "A Single Day of Cost Accounting," when managers and specialists of kolkhozes and sovkhozes analyze the results of the production and financial activity of enterprises, cost accounting subdivisions and individual sectors, has been introduced here. Shortcomings are uncovered and ways of eliminating them are mapped out. At the same time, much attention is paid to the economic training of personnel, especially of the medium link--brigade and link leaders.

The practical experience of kolkhozes and sovkhozes in Kinel'skiy Rayon, Kuybyshev Oblast, deserves attention. All the production subdivisions of the farms of this rayon operate on the basis of cost accounting principles. They have been given great independence in matters of labor organization and utilization of equipment and material and labor resources.

Annual cost accounting assignments are discussed at production conferences and are approved during the first 10-day period in January.

The check form of operational control is applied successfully on a number of farms in this rayon. The saving of funds has contributed to the fact that during the first year of its introduction the expenditures on the item "others" have decreased by 241,000 rubles. It has become possible for farms to lower production costs. In 1982, as compared with 1981, the production cost per quintal of milk and weight gain in cattle was lowered by 1 percent and of weight gain in hogs, by 6 percent. In 1983 the cost of the entire output was lowered by 15 percent.

It was noted at the zonal conferences that in the work on the introduction of intrafarm cost accounting the top-priority role was assigned not so much to the economic service itself as to managers and specialists of farms, brigades, sections and other subdivisions. The organization, discipline and results of work of the collective largely depend on the position of these workers.

Recently, kolkhozes and sovkhozes have received financial resources almost without limitations regardless of the fulfillment of the plans for the production and purchases of agricultural products. Having gotten used to such a situation, many managers ceased to count expenditures and to think about and be concerned with an improvement in economic indicators. As a result, throughout the RSFSR the outlay of embodied and live labor per unit of output remains high and has not been reduced in recent years.

The participants in the conferences stressed the shortcomings in material incentives and the lack of their connection with end results and determined the passive role of workers in the cause of strengthening and development of the public economy.

The collective contract is one of the specific and efficient forms, by means of which it is possible to ensure a significant growth of output and the saving of resources. The application of the contract in farming and animal husbandry is not a new matter. The long-term practice of subdivisions operating on the basis of contract principles shows that, being under the same conditions, they systematically obtain 20 to 30 percent more output. On such collectives labor productivity is much higher and production costs are lower, which means that the return on investments is much more efficient.

It was stressed that the collective contract was the most improved form of intrafarm cost accounting interrelations based on the mutual interest, on the one hand, of the brigade and link and, on the other, of the farm in the production of a greater quantity of output.

Evaluating the experience accumulated in the introduction of the brigade contract, the participants in the conferences noted the weak work in individual oblasts in Russia. Whereas throughout the RSFSR in farming 28 percent of the sown areas are assigned to contract collectives, in Vologda Oblast, only 10 percent, in Kalinin Oblast, 11 percent, in Yaroslavl Oblast, 7 percent, in Smolensk Oblast, 6 percent, in Krasnoyarsk Kray, 13 percent and in the Dagestan ASSR, 11 percent.

The question as to why such an efficient method of labor organization has not yet become widespread has been raised rightfully. The answer lies primarily in the fact that managerial personnel of kolkhozes, sovkhozes and agricultural bodies have irresponsibly approached the organization of brigades and links and a strict observance of technological discipline on farms on the basis of cost accounting. The reorganization in the activity of technological, economic-planning and bookkeeping services does not proceed quite rapidly on a number of kolkhozes and sovkhozes. In a number of places managers and specialists to this day have not undertaken the role of initiators in the introduction of the collective contract and have not manifested interest in providing assistance to collectives working on the basis of a contract. Such a situation is connected not only with the established habit for the existing forms of organization and remuneration of labor, but to a certain extent with the lack of understanding of the importance of this matter and with the lack of desire to burden oneself with additional concerns.

A preliminary analysis of the results of work of kolkhozes and sovkhoses has shown that agricultural bodies must activate work on the advance of the economy of lagging kolkhozes and sovkhoses. Today their number is still too big. The insufficient attention to lagging farms on the part of agricultural bodies and economic services is one of the reasons for this. As before, fewer capital investments, material resources and mineral fertilizers are allocated to economically weak sovkhoses and kolkhozes in many oblasts, krays and autonomous republics.

Such management practice does not meet present requirements. Furthermore, it should be kept in mind that many weak farms work on inferior land and have a shortage of manpower, but agricultural bodies do not take proper measures to reinforce them with skilled personnel. Economic services, when establishing price markups, have not taken into consideration the factors in the unprofitable operation of these farms everywhere. Therefore, the conferences have determined that the advance of economically weak farms should be considered top-priority work in rural areas.

Control over the fulfillment of measures for increasing the efficiency of agricultural production approved by the councils of agroindustrial associations should also be included in urgent matters and here and there they should be revised and more specific ones should be outlined.

The participants in the conferences paid much attention to problems of the economic training and education of personnel. This is understandable. The successful management and control of production and the efficiency, standard and quality of labor largely depend on them.

Many kolkhozes and sovkhoses in Moscow, Leningrad and Chelyabinsk oblasts and Stavropol Kray approach the organization of economic education from the position of development of a creative attitude toward work in people. Unfortunately, this is done by no means everywhere. There are frequent cases when classes are held formally and councils for economic education are inactive.

As was noted, bureaus for economic analysis and balance commissions of agricultural enterprises should play their mobilizing role in the cause of strengthening the economy of kolkhozes and sovkhoses and increasing the efficiency of agricultural production. The following demand must be met strictly: An enterprise manager should head the bureau for economic analysis of every kolkhoz and sovkhov. Only then will this public body become an active conductor of the economic policy of the party in rural areas and will make a marked contribution to an improvement of all economic work. It needs further improvement. It will be necessary to better utilize the material and financial resources of kolkhozes and sovkhoses and to increase production efficiency. For this in all economic links it is very useful to expand an even more persistent fight for economy and thrift and for a decrease in production costs.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

### USE OF COMBINED EQUIPMENT UNITS IN UKRAINE PROMOTED

Moscow SEL'SKAYA ZHIZN' in Russian 19 Apr 84 p 2

[Article by Doctor of Technical Sciences A. Yushin, Kiev Oblast, under the rubric "Problems of Technical Progress": "Combined Aggregates"]

[Text] Row crops account for 25-30 percent of the total crop cultivation in the Ukraine alone. The large labor outlays there are caused by a number of factors, but primarily by the fact that the existing group of machinery allows for the quality performance of the operations only at low speeds.

In this situation the output from the units can only be raised by increasing the width of their coverage and by adopting progressive industrial-type technologies, whereby combined machinery is used for performing several operations on a single pass.

Combined units are being used to cultivate sugar beets on the Kommunar Kolkhoz in Semenovskiy Rayon, Poltava Oblast. They consist of a T-70S tractor, a USMK-5.4 cultivator mounted on the front of the tractor, a POU top-dressing and fertilizer spreader and an SST-12 planter mounted on the rear. Such a unit performs the pre-planting cultivation, the fertilizer application and the planting. Their employment has made it possible to free six Belarus' tractors and 15 machine operators for other work. The economic effect amounts to 20,000 rubles.

T-74 tractors in combination with three SPCh-6 planters, three KRN-4.2 cultivators and a POU top-dressing and fertilizer spreader are being successfully used for cultivating corn and sunflowers on farms in Kominternovskiy Rayon, Odessa Oblast. They can work as much as 100 hectares in a day. The same kind of equipment units are used on farms in Veselinovskiy Rayon, Nikolayev Oblast, and this has freed 75 Belarus' tractors, 140 machine operators and 70 planters. Labor productivity was simultaneously increased, and the number of machine-passes over a field was reduced. Many such examples could be cited.

The many years of experience in the use of 24-row equipment units with the T-150K wheeled tractor for cultivating sugar beets in rows 450 millimeters apart on farms in Lipetsk Oblast deserves to be studied. A day's output for one such unit performing the pre-planting cultivation, applying and covering herbicides and fertilizers, and planting the seed, all on one pass, averages 60-70 hectares there. This is 1.7- to 1.9-fold more than the output for the T-70S tractor, and considerably less fuel is consumed.

The use of equipment units is one of the important requisites for the adoption of industrial technologies for cultivating corn, sunflowers, potatoes and other row crops in agricultural production. Their use with high-performance tractors makes it possible to improve the field operations, reduce the amount of time elapsing between the preparation of the soil, the planting, the application and covering of the herbicides and fertilizers, preserve soil moisture, cut the number of passes made by the units over a field and reduce soil compacting. All of this helps to increase yields.

In order to use the T-70S and T-150K tractors for cultivating row crops, they have to be equipped with additional assemblies and mechanisms for combining them with 2- and 3-section, single-operation cultivating and planting machines. In other words, we have to create out of the existing, obsolete machine models, a fundamentally new, mobile power unit with integrated basic parameters--an equipment gang which performs several production operations with a single pass.

Dual, narrow tires, separated by 450 millimeters, the width between rows, must be installed on the T-150K tractors for cultivating sugar beets, for example. An assembly is mounted on the front of the tractor at the same height as the rear-mounted device. Two connecting containers, designed to hold fertilizers or herbicides, as well as a centrifugal pump driven from the rear power takeoff shaft, are attached to the rear part of the tractor frame.

Two USMK-5.4 12-row cultivators are mounted on the front of the tractor by means of an SA-2 automatic coupling device. Two SST-12B 12-row planters are mounted on the rear with the same kind of automatic device. The height of the seed containers is increased by 240 millimeters, which means that they do not have to be filled as frequently. The planters are outfitted with hoses for applying liquid fertilizer or toxic chemicals.

The markers are connected to the planter by means of brackets rigidly attached to the frame.

Such a unit used in the cultivation of sugar beets performs the pre-planting cultivation of the soil, applies fertilizer and herbicides, covers them, and plants the seed, all with a single pass.

The T-70S and T-74 tractors are equipped with front mounts and RS-18 general-purpose coupling racks with an effective width of 12.6 meters, by means of which it is possible to perform up to 10 operations in the cultivation of corn and sunflowers. Two machine operators working with one such unit can plant 1,000 hectares and take care of the crop during the entire vegetative period.

Naturally, none of these units has the automatic devices needed to monitor the performance of the operations and operating conditions, since they are put together by skilled workers locally. The great width of these units and the fact that they lack folding side sections gives them poor maneuverability, which makes it difficult to take them from one field to another. Despite this, however, their use produces a large economic effect compared with the MTZ-50 and MTZ-82 general-purpose, row crop tractors. Because of their low traction, inadequate power and imperfect design, they do not provide for the optimal combination of machinery.

Tests have shown that modifying the MTZ-82 tractors of traditional design, thoroughly standardizing them by increasing their power and traction rating, and installing additional assemblies and devices on them complicates their design, increases their weight, and makes the operations more expensive. All of this does not accomplish the main task, however--achieving a good combination of equipment with a variable system of side-coverage harvesters and other machinery.

The experimental LTZ-145 150-hp tractors produced at the Lipetsk plant are the best adapted for these purposes. They have front and rear driving wheels of the same size, places for mounting the necessary containers, a front mount, a reverse for all the drives, slow speeds, independent and synchronized power takeoff shafts. These tractors are being successfully used for performing the most diverse agricultural jobs. Their adoption has made it possible to significantly reduce the unjustifiably large number of narrowly specialized, expensive, self-propelled machines with a small yearly work load. Unfortunately, these tractors have been on their way to the series-production line for many years now.

Industrial technologies which call for combined units demand that special attention be given to the quality, the universality and originality of the designs and arrangements of the tractors and sets of combined, automatic machinery, coordinated with respect to weights, operating speeds and coverage widths, for agriculture. The builders of machinery for agriculture must accomplish this task at once.

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## TILLING AND CROPPING TECHNOLOGY

### INDUSTRIAL TECHNOLOGY IMPACT ON CORN CULTIVATION IN MOLDAVIA

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 12, Dec 83 pp 22-25

/Article by A.I. Venger, graduate student at the All-Union Scientific Research Institute of Agricultural Economics: "Effectiveness of Corn Production Using the Industrial Technology"/

/Text/ In successfully solving the tasks concerned with implementing the Food Program, an important role is being played by the conversion of the agricultural branches over to an industrial basis. Under modern conditions, a typical feature of this particular process is the introduction of industrial technologies, the essence of which consists of the use of a system of highly productive machines and the carrying out of all operations on a production line basis with all of the agrotechnical requirements being observed in a thorough manner. With regard to field crop husbandry, the industrial technology calls for the carrying out of a minimum number of soil cultivations, the introduction of an integrated system for protecting plants, the use of appropriate varieties, the application of scientifically sound mineral and organic fertilizer norms and efficient labor organization, such that an increase will take place in cropping power while simultaneously reducing labor and resource expenditures per unit of output.

The conversion of the field crop husbandry branches over to an industrial basis is inseparably associated with equipping the farms with new and technically more improved and economic machines. Thus a chief element and a necessary condition for an industrial technology is a scientifically sound system of machines which will make it possible to carry out all operations during brief agrotechnical periods.

The new technology imposes high requirements upon the use of chemical processes, which is one of its principal elements and one which ensures not only an increase in cropping power but also the restoration of soil fertility, a factor that is of great importance in connection with the intensive use of land.

The experience accumulated in the introduction of industrial technologies in various zones throughout the country serves to underscore their high effectiveness. In the Moldavian SSR, for example, all of the conditions required for introducing the industrial technology have been created owing to the successful implementation of the agrarian policies.



The highest level of industrialization in field crop husbandry has been achieved in the production of corn. A study of the experience accumulated in the Hungarian People's Republic in introducing the industrial technology into operations preceded the use of the industrial technology on an extensive scale for corn production in Moldavia. The corn cultivation technology employed in the Baya industrial-production system was used as the basis. This technology was approved in 1977 for use on an area of 800 hectares by Mechanized Detachment No. 11 of the Chadyr-Lunga Association for the Mechanization and Electrification of Agriculture. In the process, the cropping power of the corn amounted to 63 quintals of grain per hectare and labor intensiveness decreased by a factor of 7. By 1981 the new technology had been introduced into operations on 96 percent of the area occupied by corn in Moldavia. For the country as a whole, the areas on which the industrial methods were employed amounted to 2.7 million hectares and, as a result, the cropping power increased by 13 percent and 1,113,000 additional tons of grain corn.

An economic evaluation of the effectiveness of corn cultivation using the industrial technology was carried out with the aid of a system of technical-economic indicators, which included: indicators for the output production level (cropping power, gross output per hectare); labor productivity (labor expenditures per quintal of output, the quantity of products produced per average annual worker and per man-hour); the effectiveness of capital investments and fixed productive capital (coefficient of the effectiveness of capital investments, specific capital investments per ruble of increase in output, pay-off period, output-capital ratio, capital-output ratio); effectiveness of production expenditures (coefficient of reimbursement for production expenditures, production cost per quintal, profit per quintal and per man-hour) and production profitability.

When analyzing the principal indicators for the effectiveness of grain corn production on an industrial basis, one must focus a maximum amount of attention on raising its cropping power compared to the cropping power obtained from cultivation using the traditional methods (see Table 1). Analysis has shown that the basically new agrotechnical methods and the integrated system of plant protection produced an average increase in cropping power during the 1977-1982 period of 55 percent. It is apparent from the table that the cropping power for corn cultivated using the industrial technology surpassed the cropping power obtained from the conventional corn cultivation technology by 2.3-23.8 quintals per hectare. This enabled the kolkhozes to obtain additional output without having to expand the sowing areas. During the period analyzed, the republic's kolkhozes, having introduced the industrial technology into operations, obtained 430,800 additional tons of corn, or 29 percent more compared to the conventional technology.

At the same time, it bears mentioning that the cropping power level achieved was lower than that which is potentially possible. Growth in cropping power is being held back by many factors, mainly of an organizational nature: failure to observe technological discipline, untimely fertilizer applications, disruptions in the schedules for supplying the farms with machine systems, spare parts and resources for the use of chemical processes and for protecting plants and the carrying out of individual agrotechnical operations in a low quality manner. The elimination of all of the mentioned shortcomings will make

it possible to raise cropping power considerably. Thus, at Mechanized Detachment No. 11 of the Valya-Perzhskiy Inter-Farm Crop Rotation Plan, headed by Hero of Socialist Labor S.K. Parmakli, the strict observance of the principles of the industrial technology, which include a complex of organizational-technical and agronomic measures, made it possible to achieve high successes. During the 1980-1981 period (unfavorable years from the standpoint of climatic conditions), an average of 54 quintals of grain corn was obtained from each hectare, or 73 percent more than was obtained at kolkhozes in the republic and 28 percent higher than the average level for the rayon. The operational experience of this subunit revealed that the growth in cropping power was accompanied by a reduction of 53 percent in labor intensiveness and 47 percent in material-monetary expenditures, compared to the average indicators for the rayon. All of this serves to underscore the unused reserves which are exerting a direct effect with regard to raising the efficiency of corn cultivation using industrial methods.

Table 1

Principal Indicators for the Production of Commodity Grain Corn at Kolkhozes in the Moldavian SSR

	Year					
	1977	1978	1979	1980	1981	1982
Conventional Technology						
Area, in hectares	174,182	138,502	81,168	6,074	4,073	1,076
Gross yield, in tons	512,896	604,800	725,647	16,521	9,347	322
Cropping power, in quintals per hectare	29.4	40.0	27.8	27.2	22.0	31.2
Industrial Technology						
Area, in hectares	800	14,600	56,789	179,213	128,919	144,140
Gross yield, in tons	462	8,860	268,044	673,841	313,273	603,946
Cropping power, in quintals per hectare	63.2	60.7	47.2	37.6	24.3	41.9
Coefficient of excess in cropping power	1.96	1.51	1.79	1.38	1.10	1.34

The conversion of corn production over to an industrial basis is accompanied by growth in labor productivity. Thus, compared to the conventional technology, the average labor expenditures per quintal during the 1977-1981 period decreased by 41 percent. However, it bears mentioning that the labor intensiveness for producing 1 quintal of corn continues to remain rather high -- 2.1 man-hours. The most laborious operations are combating weeds, the harvesting work and the post-harvest cleaning of the grain and this is associated with a shortage of reliable and high quality equipment and herbicides.

Owing to design shortcomings in the corn harvesting combines employed for harvesting the corn seed, the ears are delivered to the threshing floors in uncleaned form. As a rule, they must be cleaned manually and this leads to an increase in the proportion of manual labor, which accounts for 80 percent of the overall labor expenditures. The solving of this problem will promote an increase in labor productivity.

As a result of the conversion of corn production over to an industrial basis, a change takes place in the ratio between total expenditures for live and past labor.

The proportion of expenditures for past labor, compared to total expenditures on the average for 1979-1981, amounted to 79 percent whereas the figure for 1976-1978 was 60 percent and this led to a reduction of 30 percent in labor intensiveness.

Thus use of the industrial technology for corn production produces a situation wherein the proportion of live labor decreases while the proportion of past labor increases. However, the latter increases in a manner such that the overall amount of labor included in the product decreases. Thus the production cost for 1 quintal of grain obtained in accordance with the new technology amounted to 6.77 rubles on the average for 1979-1981 and was 13 percent lower than the production cost for grain when the corn was cultivated using the conventional technology.

In connection with analyzing the items of expenditure, it bears mentioning that the use of industrial methods for the cultivation of corn constitutes a principal factor for lowering wage expenditures. Compared to 1976 when the entire area used for corn was cultivated using the conventional technology and wage expenditures constituted 35 percent of the overall total of production expenses, in 1982 -- only 15 percent. However, expenditures for wages continue to remain rather high at kolkhozes in Moldavia and this is explained by the considerable use of manual labor for work concerned with tending the crops and the post-harvest processing of the crops and also by the comparatively low productivity of the machines and shortcomings in labor organization. Thus, in the production-cost structure for grain the processing expenditures constitute approximately 26 percent, while at the same time, as revealed by experiments carried out at the All-Union Scientific-Research Institute of Corn, the expenses for carrying out this work can be reduced by 0.4-0.8 rubles per quintal.

The studies carried out have shown that the conversion of corn production over to an industrial basis is accompanied by an increase in material-monetary expenditures per hectare. In particular, an increase has taken place in the proportion of material expenditures for industrial production. For example, the per hectare expenditure for acquiring herbicide amounts to 34.0-38.4 rubles, compared to 16.7-27.2 rubles when use is made of the conventional technology. The growth in expenditures of an industrial nature must be compensated by higher levels for cropping power and labor productivity. However, analysis has shown that the return from expenditures continues to remain low during some years.

A most important indicator for economic effectiveness of the industrial technology is that of profit, which embodies a reduction in production costs, an increase in the volume of output production and growth in labor productivity. According to estimates by specialists at the Gibrud Scientific-Production Association, the overall effect realized from use of the new technology for corn production during the 1979-1980 period amounted to approximately 30 million rubles for the republic as a whole.

Table 2

Comparative Effectiveness of the Corn Cultivation Technologies at  
Moldavian Kolkhozes (average for 1976-1980)

	Conventional Technology	Industrial Technology
Cropping power, quintals per hectare	30.1	36.6
Direct labor expenditures per quintal, per man-hour	3.54	2.10
Operational expenses (rubles) per: hectare	32.2	79.8
quintal	1.07	2.18
Production cost per quintal, rubles	6.58	6.36
Net income (rubles) per: hectare	52.0	71.0
quintal	1.73	1.95
Profitability level, %	26.2	30.6

The data furnished in Table 2 reveals a high degree of effectiveness when converting over to cultivating corn on an industrial basis. Despite an increase of 18 percent in material and monetary expenditures per hectare, owing to a higher cropping power, the production cost for 1 quintal of grain decreased by 4 percent. Compared to the conventional technology, the operational expenses increased twofold and yet this did not bring about an increase in the production expenses. The advantage of the industrial technology lies in the fact that it serves to raise labor productivity. The improvements in cropping power and labor productivity and a reduction in production costs ensured an increase in net income of 12 percent per quintal and in the profitability level -- 4.4 percent.

At the same time, it bears emphasizing that the introduction of the industrial technology for cultivating corn has revealed that the effectiveness of the new technology at a number of kolkhozes throughout the republic is considerably lower than expected (the cropping power level is not sufficiently high, while on the other hand the production cost for the grain is too high). One of the chief reasons for the low effectiveness of the industrial technology is violations of the scientifically-sound technological discipline when carrying out the various operations. This is associated with the disproportions existing between the requirements for industrial production and the existing system of labor organization, the low skills of the workers and insufficient material stimuli in behalf of the timely and high quality carrying out of all operations under the new conditions.

Thus, improvements in the effectiveness of grain corn production are greatly dependent upon the creation of conditions for cultivating this crop on an industrial basis, conditions which will ensure the most complete realization of the potential afforded by the new technology.

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## TILLING AND CROPPING TECHNOLOGY

### RESERVES FOR INCREASING PRODUCTION OF GRAIN CORN IN MOLDAVIAN SSR

Moscow SEL'SKAYA ZHIZN' in Russian 13 Jan 83 p 2

/Article: "Better Ears Must Be Obtained"/

/Text/ Among the priority tasks assigned to the farmers and other workers attached to the agroindustrial complex in connection with the country's Food Program, an important place is occupied by the problem of sharply increasing the production of grain forage crops, particularly grain corn. How can this task best be solved? The eminent machine operator of the Moldavian SSR, leader of a mechanized detachment of the Suvorov Production Association and Hero of Socialist Labor S. Lungu reflected upon this matter.

Under the conditions found in Moldavia, corn constitutes an exceptionally strong reserve for augmenting the grain forage resources. This is borne out by last year's results, a year which was complicated from the standpoint of weather conditions -- the republic supplied the granaries of the homeland with 515,000 tons of corn and sold 804,000 tons of grain to the state.

Many farms and rayons achieved noticeable increases in cropping power. During a republic gathering of leading agricultural workers, the successes achieved by corn growers in Lazovskiy, Slobodzeyskiy and Vulkaneshtskiy Rayon were singled out. Many of them obtained averages of 45-50 quintals of grain per hectare and at individual kolkhozes and sovkhoses -- 60-70 quintals. Considerable progress was realized in my own native Suvorovskiy Rayon, where 41 quintals of grain corn were obtained from each of 9,500 hectares. Our mechanized detachment, which services the Kolkhoz imeni Lenin, surpassed the 60 quintal level. Similar results were achieved by the machine operators at the Progress Inter-Farm Association for Feed Production. And the highest yield was obtained by the corn growers at the Sovkhoz imeni Michurin -- 76 quintals of grain per hectare.

It would seem that these indicators are more than satisfactory. However, when the farms, following the November Plenum, began analyzing the annual results and measuring the achievements against the goals set forth in the Food Program, each collective drew the same conclusion: better work can and should be carried out. Moreover, the chief criterion for evaluating the quality of the work must be that of mastering the industrial technology more completely. Today it is well known to all of the machine operators and yet the statement

bears repeating that this technology will produce the desired results only when all of its elements are observed.

Hero of Socialist Labor Saveliy Mikhaylovich Parmakli, owing mainly to high technological discipline, annually obtains stable yields of 60-70 quintals. Our detachment learned a great deal from Parmakli. And if last year we had not tried in like manner as his collective, then we would not have obtained a good yield.

In the autumn, having noted that there was only a small amount of moisture in the soil, we applied the principal dose of organic and mineral fertilizer during the plowing operations and we carefully leveled off the plantation. In the spring we followed one particular rule in a very strict manner: to prepare only as much area as could be sown the same day. Not even the slightest pause was tolerated between the application and placement of the herbicides and consequently they "performed" in an outstanding manner. The plantation remained "clean" all summer. This fact, coupled with a fine fertilizer top dressing being applied to the soil during sowing and the growing season, served to produce a raised stability in the corn against drought conditions.

Certainly, even a 60 quintal yield cannot be viewed as the complete return from an industrial field on which highly productive hybrids are cultivated. We are utilizing the potential of such a field only partially. An average of six and a half quintals of mineral fertilizer were applied during the principal cultivation and approximately eight were required. On an irrigated tract where work was carried out in accordance with a special program prepared by specialists attached to the republic's kolkhoz council and agrochemical service, only two irrigations were carried out instead of seven. The machine operators failed to ensure a normal regime for the irrigation network. A considerable shortfall in yield was experienced: instead of the guaranteed 100 quintals of corn per hectare, only 83 quintals were obtained.

And if we are dissatisfied with such indicators, then surely it must be very awkward for those representatives of the Druzhba, Put' Lenina and imeni Suvorov kolkhozes who attended the rayon meeting for leading production workers. Indeed they obtained no more than 32 quintals of corn grain per hectare, despite the fact that they have the same machines at their disposal and are issued the same norms for fertilizers and herbicides. I am confident that they will be held accountable for their actions. The same can be said regarding the XX Parts'yezd Kolkhoz, the collective of which initiated a socialist competition in the rayon. Here the specialists and machine operators failed to carry out all of their tasks. The corn plantations were not supplied with 1 ton of organic fertilizer and the mineral fertilizer was applied mainly in the spring. The sowing was completed 10 days later than planned and the harvest work was dragged out for 40 days.

Labor and executive discipline are still low and many workers are performing according to the principle: the situation is fine if the work is carried out and if not -- they will still manage. In critically evaluating their work, the machine operators and specialists attached to farms and inter-farm associations are presently devoting special attention to improving their skills. All of them are undertaking additional training and emphasis is being placed upon the most effective method for transmitting experience -- practical

demonstrations. These are one hundred times more convincing than the very best instruction. At the Progress Association, where an attempt had been made to master the industrial technology, the work of cultivating the corn plantations was not organized correctly initially and thus the fields were not leveled off properly. The association's machine operators requested us to come and provide them with a lesson on the use of the industrial technology. One tract was worked on a joint basis. And now 3 years later the Progress Association occupies a prize position in the republic's competition among associations for feed production.

Quite often we state that a neighboring field is not an alien field. Here we have in mind the need for furnishing assistance to backward farms. When we learned that the mechanized detachment which provides services for the Put' Lenina Kolkhoz had completed the year with a low yield, we made the recommendation to its leader P.I. Chernichuk that a contract for collaboration be drawn up. This year, during the course of carrying out the principal technological operations, we will carry out our own type of mutual check upon expertise: our machine operators will work with our neighbors and the neighbors with us. Such a mutual exchange of practical experience is also planned for a number of other farms in the rayon. It must serve to teach a great deal to those who still have not mastered the high culture of farming.

Allow me to say a few words concerning the creation of economic and organizational conditions which will stimulate labor, initiative and enterprise. Fine incentive measures have been developed in the republic for those who grow grain, technical and other crops. And if it happens that they are not producing a proper return in all areas, then it is only because a high level of production organization has not been enforced. The same holds true for the contractual system. Quite often it does not take root simply because it causes problems for the farm specialists and leaders: a brigade or detachment must be provided with everything required according to the contract. The fact that one becomes accustomed to mismanagement or to an easy life does not simplify the problem. With regard to our detachment, last year it converted over to the job contract plus bonus wage system. At the present time, the land reclamation specialists and agrochemical partners are guided by this system. Similar to the machine operators, their work is evaluated based upon the final results.

When advocating the use of contracts, one must not pass over in silence certain difficulties of an objective nature. There was a time when we referred to the low quality and low productivity of varieties. Today we are being supplied with highly intensive simple hybrids, all of which possess great potential. It is gratifying to note that the plant breeders are carrying out this change in a rapid manner. Unfortunately, this cannot be said regarding the designers and manufacturers of the machines. We still do not have a complex of highly productive and wide-cut units capable of combining the technological operations to the maximum possible degree.

In commencing the new work year, we must analyze our work again and again and place new reserves in operation. The detachment is under an obligation to obtain 65 quintals of grain corn from each of 700 hectares, including no less than 100 quintals per hectare from a 100 hectare tract of irrigated land. This

surpasses the planned indicator by almost one third. It is believed that such a goal is fully within the capability of our detachments. It is now only necessary to commence this work.

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## TILLING AND CROPPING TECHNOLOGY

### CONFERENCE ON METHODS FOR IMPROVING GRAIN CORN PRODUCTION

Moscow PRAVDA UKRAINY in Russian 18 Feb 84 p 2

/Article: "A Crop of Great Potential"/

/Text/ This year the grain growers in Dnepropetrovsk Oblast have vowed to produce not less than 1 million tons of grain corn. In order to achieve this goal, a great amount of organizational work is being carried out on the farms in connection with the extensive use of leading agrotechnical methods. Active preparations are being made for mastering the industrial technology used for cultivating this crop and interaction between the partners in the agroindustrial complex is being strengthened. The experience accumulated at a number of kolkhozes and sovkhoses throughout the oblast has been studied by the participants in a 2-day republic scientific-production conference, during which methods for increasing the production of corn grain were examined. The deputy chairmen of oblast executive committees, the leaders and specialists of oblast and rayon agricultural administrations and Sel'khoztekhnika and also scientists participated in the work of the conference.

In the report by the Minister of Agriculture for the UkSSR M.V. Khorunzhiy and in other speeches, mention was made of the great opportunities that are available for increasing the return from each hectare of corn throughout the republic. Many years of experience accumulated at a number of kolkhozes and sovkhoses in Dnepropetrovsk, Donetsk, the Crimean, Kherson, Cherkassy, Chernovitsy, Rovno, Volyn, the Transcarpathian and other oblasts, which are obtaining 60-70 quintals of grain per hectare from non-irrigated land and more than 100 quintals from irrigated land, serves as convincing proof of the fact that it is possible to increase the cropping power in all areas provided the technological requirements for cultivating this crop are observed and use is made of the available logistical resources. This year great importance is being attached to utilizing the experience of leading workers and introducing the industrial technology into operational use. Emphasis is placed upon the need for utilizing the period of time remaining before moving out onto the fields for training in the practical working out of the entire complex of operations. Special attention must be given to the working principles and proper adjustments for the new corn sowing machines. The equipment must be repaired in a reliable manner, mineral fertilizers and herbicides must be made available and an efficient program of action must be developed for the spring and summer period.

A speech was delivered during the conference on implementing improvements in seed production. This year the republic has adequate quantities of seed for

1st generation corn and for hybrids of various ripeness groups. A requirement exists for ensuring that the kolkhoz, sovkhoz and RAPO specialists utilize these materials in a thrifty manner.

The need has been pointed out for introducing the collective contract into operations in a more active manner and for disseminating the experience of those brigades and teams which, as a result of employing this method of labor organization, are obtaining high yields.

The participants in the conference visited the experimental farm of the All-Union Scientific-Research Institute of Corn, where they became acquainted with a complex of machines and implements used in the cultivation of corn.

A speech was delivered during the conference by Candidate Member of the Politburo of the Central Committee of the Communist Party of the Ukraine and 1st deputy chairman of the UkSSR Council of Ministers Yu.A. Kolomiyets.

The 1st secretary of the Dnepropetrovsk Oblast Party Committee V.G. Boyko and executives of the UkSSR Council of Ministers and a number of republic ministries and departments participated in the work of the conference.

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CSO: 1824/384

## TILLING AND CROPPING TECHNOLOGY

### FURTHER DEVELOPMENT OF CORN CROP IN DNEPROPETROVSK OBLAST

Kiev PRAVDA UKRAINY in Russian 2 Dec 83 p 2

/Interview with Ye.R. Chulakov, secretary to the Dnepropetrovsk Oblast Committee of the Communist Party of the Ukraine by correspondent V. Mishchenko; date and place not specified/

/Text/ In increasing the gross yields of grain and augmenting the forage resources, an important role will be played by corn. A great amount of attention is being given to this crop in Dnepropetrovsk Oblast. A program of measures has been adopted here for raising the cropping power of corn and expanding its sowings such that, commencing in 1986, it will be possible to obtain 1 million tons of grain. In this article the secretary to the Dnepropetrovsk Oblast Committee of the Communist Party of the Ukraine, Ye.R. Chulakov, discusses the methods for carrying out this plan and also the campaign by the oblast's corn growers to achieve a high yield.

/Question/ Progress and particularly the improvements which our Dnepropetrovsk farmers are striving to achieve are impossible in the absence of a strong base of a definite level. It was on the basis of such initial positions that they gathered together and commenced the campaign to harvest 1 million tons of grain. Is this not true?

/Answer/ It should be stated that for the oblast as a whole the productivity of the corn fields is still not very high: despite the fact that this year the cropping power was 4 quintals higher than the average annual indicators for the Tenth Five-Year Plan, we are nonetheless still not entirely satisfied with this result. And this is true mainly because the experience of leading workers reveals that a great deal more can be accomplished through the extensive use of scientific recommendations and a conscientious attitude towards the observance of all technological requirements. This has been borne out in particular by our renowned countryman, Hero of Socialist Labor and USSR State Prize Laureate Mark Yevstaf'yevich Ozerniy. As early as 1949, at the Chervoniy Partizan Kolkhoz in Verkhnedneprovskiy Rayon, he established a world record for corn productivity when he obtained 223.8 quintals per hectare.

This year there are many followers of M.Ye. Ozerniy in the oblast. A prize has been instituted in his name, with thousands of machine operators striving to

win it. Included among them are A.M. Belyy of the Kolkhoz imeni K. Marks and N.I. Prus of the Kolkhoz imeni Gor'kiy in Nikopolskiy Rayon, V.L. Shiba of the Chervoniy Partizan Kolkhoz and I.A. Kravchenko of the Kolkhoz imeni Dzerzhinskiy in Verkhnedneprovskiy Rayon, V.I. Kramar' of the Kolkhoz Ukraina in Krinichanskiy Rayon and M.M. Pavlenko of the Peremoga Sovkhoz in Dnepropetrovskiy Rayon. The collectives headed by these individuals, following the introduction of industrial methods for cultivating corn, are obtaining yields on the order of 100-120 quintals per hectare. Our task consists of making the experience of leading workers available to all and their records -- the daily norm.

/Question/ And what should the average cropping power for the oblast be in order to achieve the 1 million ton goal?

/Answer/ Not less than 40-45 quintals per hectare on non-irrigated lands or 70-80 quintals on irrigated lands.

/Question/ Based upon this year's results, is it not true that the corn growers must perform a great amount of work if this level is to be achieved?

/Answer/ Yes, we are confronted by difficult tasks. But we are inspired by the fact that today not only individual leading workers but also teams, farms and even entire rayons are obtaining fine corn yields. This includes Nikopolskiy, Verkhnedneprovskiy, Tsarichanskiy, Magdalinovskiy and other rayons.

/Question/ What contribution is being made by the scientists towards solving the tasks concerned with raising the cropping power of corn?

/Answer/ The Dnepr Scientific-Production Center, which specializes in this crop, is located in our oblast. Its collective is exerting great influence with regard to increasing the gross yields of corn. Thus, many highly productive hybrids have been developed at the All-Union Scientific-Research Institute of Corn: Dneprovskiy-758, Dneprovskiy-505 and others, a technology has been developed for the cultivation of corn and much has been accomplished in connection with the programming of yields, especially on irrigated lands.

Compared to last year when the Dnepr Association furnished practical assistance to 40 farms throughout the oblast in the cultivation of corn, this year the number will be increased to 100 farms. Large batches of seed are being prepared here for various parental forms of corn hybrids for turning over to the farms. And in 1984 the plans call for the sowing of highly productive hybrids as follows: Dnepropetrovskiy 505 on 75,000 hectares, Dneprovskiy-758 -- 50,000 and Luch-300 -- on 10,000 hectares. Moreover, in the future all areas will be occupied only by these highly productive hybrids.

The oblast's scientists have also intensified their work aimed at breeding medium-early and mid-season ripening hybrids, which are superior to existing ones. The plans call for an extensive program aimed at introducing a complete system for protecting plants against pests and weeds, new methods for tilling the soil and tending the crops and also for improvements in the methods employed for the post-harvest processing, drying and storage of the grain.

A permanent exhibit of machines and implements used for the cultivation of corn is in operation at an experimental farm of the Dnepr NPO /scientific production association/. The scientists and specialists have commenced the preparation of technological plans which reflect the characteristics of all zones throughout the oblast. Placards and booklets dealing with the experience of the best corn growers are being prepared for publication.

/Question/ Could you cite a specific example of close interaction between the scientists and agricultural workers?

/Answer/ The best results of such collaboration can be seen using Krinichanskiy Rayon as an example. This rayon became the base for the introduction of the latest scientific achievements. As early as 1975, scientists attached to the All-Union Scientific Research Institute of Corn and specialists from the rayon agricultural administration developed a scientifically sound system of farming and the measures for implementing it. It has already been carried out completely. At the present time, the rayon's kolkhozes and sovkhozes are striving to improve the technology and raise the efficiency of use of the new equipment and chemical resources and they are furnishing assistance to the machine operators in converting over to the use of collective contracts. All of this work is being coordinated by a specially created council, which includes scientists from the All-Union Scientific Research Institute of Corn and specialists from the rayon agricultural administration and also party, soviet and economic workers. The 1st secretary of the rayon party committee I.A. Kovalenko was elected to serve as its chairman. Each year the rayon obtains an average of 40 quintals of grain corn per hectare and in 1982 a record yield was obtained here -- 45.2 quintals.

Recently the corn growers in Krinichanskiy Rayon undertook a new goal: to raise the average annual production of grain corn to 100,000 tons by the end of the Eleventh Five-Year Plan. This valuable undertaking is receiving broad support among all agricultural workers.

/Question/ The campaign for the 1984 harvest has already commenced. How is work progressing among the oblast's corn growers at the present time?

/Answer/ The agricultural workers are presently undertaking all measures aimed at obtaining a high yield for the 4th year of the five-year plan. The structure for the areas under crops has been put in good order on all of the farms, the corn will be grown following the best predecessor crop arrangements and the fields have been well fertilized and plowed. This crop will be grown by 550 mechanized detachments, all of which are operating on the basis of collective contracts.

For the winter period, the plans call for the leaders and chief specialists of rayon agricultural administrations and also farms and the chiefs of detachments, team leaders and machine operators to undergo further training and become certified in special programs. The exercises will be conducted by scientists from the institute of corn and the agricultural institute and by workers from experimental stations as well as leading production workers.

Recently this entire complex of questions was discussed during a meeting of the council of the oblast agroindustrial association. The decision was made to

employ the industrial technology on the entire area under crops. An inspection has commenced in all areas on the status of the available equipment and on the repair work being carried out on it and the deliveries of machines and units to the farms are being defined more exactly. At the same time, we are organizing the production of various attachments and implements recommended by the oblast's efficiency experts, with the work to be carried out in workshops of Sel'khoz-tekhnika and at a number of industrial enterprises.

/Question/ The initiative displayed by the corn growers in Dneprpetrovsk Oblast has received broad support throughout the country. Does this not impose many obligations upon them?

/Answer/ Our farmers have been inspired by the news that the Committee on Problems of the Agroindustrial Complex of the Presidium of the USSR Council of Ministers has approved the planned measures for obtaining high corn yields. We are aware that in addition to being a great honor, this also imposes great responsibility. Thus, at the present time all of the thoughts and concerns of our agricultural workers center around the forthcoming spring period and the future harvest.

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## TILLING AND CROPPING TECHNOLOGY

### THIRTY YEARS OF VIRGIN LAND OPERATIONS REVIEWED

Moscow PRAVDA in Russian 29 Feb 84 p 3

/Article by A. Barayev, director of the All-Union Scientific Research Institute of the Grain Economy, VASKhNIL Academician and Hero of Socialist Labor, Shortandy, Tselinograd Oblast: "The Search Continues"/

/Text/ International farming, if you please, has never before witnessed such an accomplishment as the virgin land. Our Soviet people have given life to 42 million hectares of barren land. And they accomplished this within a brief period of time. This is just one example of a revolutionary decision being handed down by our party concerning grain and food goods.

It was 30 years ago that thousands and thousands of communists, komsomols and field, plant and factory workers came to the sparsely populated steppe region. They erected tent cities and fine settlements. But most important -- they transformed the steppe into a region rich in grain. The emissaries of the fraternal republics accomplished a feat in the virgin land which will remain for centuries to come.

As scientists, we greeted with a great amount of enthusiasm the decision handed down by the CPSU Central Committee and government concerning the mastering of the virgin land. At the time, no experience was available for growing grain in this region. The new settlers, mainly workers from the central oblasts of Russia, from the Ukraine and Belorussia employed agricultural practices which had been in use for centuries. It turned out later that these practices were not very useful. With the passage of time, mistakes surfaced in the form of sand storms, destruction of crops and lowered fertility. The elements had to be tamed.

In 1957 I was assigned to serve as the director of the All-Union Scientific-Research Institute of the Grain Economy, an organization which still did not exist in Shortandy. There was an experimental station. Its staff consisted of five individuals. They were housed in adobe huts.

At the present time, we have skilled cadres of personnel and doctors and candidates of science. They have modern instruments and equipment at their disposal. At the time, we invited only "trained" scientists. We relied heavily upon the farm leaders and specialists, those who possessed a good knowledge of local conditions, graduates of VUZ's and also those who displayed

a definite disposition towards carrying out research work. Many of them developed together with the virgin land and became well known authorities in their particular branches of knowledge.

Today, many years later, our collective still performs in an enthusiastic manner. The chief task is that of protecting the soil against dust storms and dry winds as rapidly as possible and retaining each drop of moisture for the crops. We carried out research work along many lines.

Very little precipitation falls in the virgin land region. During the winter, strong winds blow the snow into gullies, ravines and the flood plains of rivers. It remains in those areas where there is any type of vegetation.

For all practical purposes, the fields receive no "additional nutrition" whatsoever. In the winter the unprotected tracts are subjected to even greater erosion than that which occurs during the summer. And deep "classical" plowing tends to dry out the earth.

In short, a requirement developed for creating our own zonal soil-protective system. The essence and principles of this system have been discussed in the press on more than one occasion. They can be reduced to working the fields using sweeps and other anti-erosion machines and implements which do not turn over the bed and which retain the stubble. This hinders the development of dust storms and promotes good snow retention during the winter. The stubble serves to improve fertility and at the same time it protects the seedlings against the destructive effects of dry winds. The system calls for clean fallow in a crop rotation plan and the alternation of fallow with sowings of grain crops or perennial grasses.

A component part of soil-protective farming -- winter accumulation of moisture. Many years of study have shown that twofold and threefold snow retention work makes it possible to create a snow cover on fields up to 40 centimeters or more. This amounts roughly to 1,200-1,400 tons of water per hectare. Our areas are flat, the runoff is negligible and a large portion of this moisture is absorbed by the soil in the spring. These moisture supplies are sufficient to hold the plants over until the summer rainfall and they also allow the plants to endure the June drought conditions. In some instances, the entire harvest is formed on the basis of these moisture supplies. Let us take last year as an example. From the beginning of summer up until the harvest, not one millimeter of moisture fell. Yet the collective of the institute's experimental farm obtained more than 14 quintals of grain from each of 25,000 hectares. This was considered to be a good yield considering the local conditions found here. Good indicators are being obtained by many farmers in our own oblast as well as in neighboring ones. And at the present time, while preparing for their sowing campaign, they are diligently accumulating snow out on the fields.

The new system required new equipment. We established creative contacts with the scientists of other institutes and with designers. We were actively assisted by local party and soviet organs. On the basis of mutual efforts, models of experimental machines were created and tested within a short period of time. The working of the fields using sweeps and clean fallow are making it possible to raise the cropping power of the grain crops by 3-4 quintals. The dust storms have ended. At the present time, third generation anti-erosion machines are already being serially produced. They differ from earlier



machines in that they are more productive, more reliable and are easier to operate.

The new agricultural practices are ensuring greater stability for farming. Thus they are being put into action rapidly on the farms. And not just in the virgin land regions. The soil protective system, taking into account the local conditions, is being employed throughout the country on roughly 49 million hectares. In mastering this system, the best assistance is being furnished by the brigade leaders, agronomists and machine operators. The fate of any experiment in the field is greatly dependent upon their efforts. I myself am constantly learning from the workers in the fields. The ideas and solutions we recommend can only be confirmed and evaluated on the basis of practical experience.

The successes achieved in the virgin land are the results of collective efforts by fraternal peoples. The farms in Siberian and northern Kazakhstan are constantly receiving a great amount of assistance from the state in strengthening their logistical bases. Together with the practical workers, we are concentrating attention on the best manner for utilizing this potential and for making repayment for the concern being shown in the form of higher yields.

Are the reserves being exhausted by that which we are taking from the virgin land? Obviously the answer is no. We can and must raise the return being obtained from each hectare. This year the workers of Kazakhstan are striving to achieve a gross grain yield in excess of 29 million tons. Certainly, this is a considerable goal. But I believe that in the not too distant future the republic will be able to produce considerably more grain annually, similar to meat and milk.

What is required in order to do this? Improvements must be carried out in the agricultural practices, especially the methods for combating weeds. Or let us take mineral fertilizers. Studies have shown that the application of 3-4 quintals of phosphorus fertilizer per hectare furnishes a similar increase in grain. In addition, the ripening of the grain is accelerated by roughly 1 week. Thus the grain crops can be harvested during earlier periods and the autumn frosts and inclement autumn weather can be avoided. This also reduces losses considerably. A sufficient amount of assimilable phosphorus in the soil raises the strength of the wheat.

The return realized from a field is greatly dependent upon the variety employed. A plant breeding center has been created at the institute. It has modern laboratories and equipment and this makes it possible to obtain 2-3 crops annually and to shorten the periods required for developing new varieties.

Today a hectare of land is capable of furnishing 3-4 more quintals of grain. And indeed the country's virgin land workers have 42 million such hectares at their disposal. Thus the overall increase can be very great! Our overall goal and overall task -- to obtain this grain. All those concerned with the fate of the harvest must carry out this work in a fine manner and obtain worthy yields this year.

In addition, the country requires a broad assortment of grain and grain of outstanding quality. In the virgin land, nature itself has created conditions for the production of strong and durum wheats: a great amount of sun and a dry

climate. The eastern regions can and must furnish considerably more good quality grain than they are providing at the present time. For example, we created a laboratory for developing a technology for growing durum wheat in crop rotation plans of soil-protective farming. This will enable the practical workers to increase the production of such wheat more rapidly.

In short, reserves are available everywhere. Use must be made of them as more experience and resources accumulate. For example, animal husbandry has been developing rapidly in recent years in the virgin land. More feed is required. Where can it be obtained and how can the forage crop fields be expanded? We have large areas of solonetz soil. Of roughly 100 million hectares of such land in the country, almost three fourths are found in Kazakhstan. This represents a great resource provided it is skilfully employed. We are hearing more and more regarding the second virgin land in the republic. Such is the manner in which reference is being made to the solonetz soil. As yet they are producing no benefit whatsoever. But what would be the result if the land was reclaimed and properly tended?

The institute has addressed this problem for a considerable period of time. On experimental plots the solonetz soils furnish an average of approximately 12 quintals of barley grain per hectare. At the Sovkhoz imeni KazTsIK /Central Executive Committee, Kazakh SSR/, which borders upon the experimental farm, a yield of 17 quintals is obtained during some years. The development of the solonetz soils on an extensive scale is a matter of tremendous state importance. Certainly, it is by no means a simple task. Our scientists have selected and bred special varieties of forage crops for these soils. A technology has been found for working such areas. New implements must be created. But the designers and testing personnel are very slow in carrying out their work. Just as much serious attention must be given to the equipment for the solonetz soil as was given at one time to the anti-erosion equipment.

During the initial years devoted to mastering the virgin lands, no attention was given whatsoever to the problem of irrigation. Today this has become an urgent problem. For example, in northern Kazakhstan there are sufficient lakes and man-made bodies of water for expanding the irrigated lands considerably. Small reservoirs can be created on practically all of the farms. Studies have shown that there are considerable underground supplies of fresh water throughout almost the entire territory of the region. Individual sovkhozes are skilfully utilizing their irrigation facilities and achieving high and stable yields of corn for silage, potatoes, perennial grasses. Zones for irrigation farming must be created in a more rapid manner in the interest of obtaining guaranteed yields.

The virgin lands are on the threshold of spring. Under what conditions will the harvest for the jubilee year be brought in? An abundant amount of precipitation fell on the Kazakhstan virgin land during the winter. Many farms carried out snow retention work twice. At the present time, the snow cover is 40 centimeters or more. Moreover, the snow is very tightly packed. This means that there will be an abundant amount of water in the spring. It will drench the soil to a great depth.

Nature merely promotes the development of a good crop. In the absence of human hands, the grain would not grow. This fact is well understood by the virgin

land workers as they actively prepare for the spring campaign of the jubilee year. A chief concern is that of strictly observing the agricultural practices developed and tested over a period of many years here. In the autumn the farms laid away a good supply of wheat seed. At a majority of the sovkhozes and kolkhozes the soil cultivation machines have already been repaired. Contractual collectives are being formed. The results of 1983 have shown that higher yields were obtained owing to the fact that all operations were carried out in a more organized manner. The machine operators are taking courses and studying leading experience and scientific achievements. Beyond any doubt, all of this is proving to be of assistance in the campaign to achieve high yields.

Thirty years have passed since that time when the workers awakened the steppe region here. In looking back, one can only be surprised by the speed with which the time has flown and also by the scale of the accomplishments. With the active support of the party and the entire nation, the virgin land workers will from year to year increase the production of grain and animal husbandry products. They can and must make a worthy contribution towards carrying out the USSR Food Program.

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## TILLING AND CROPPING TECHNOLOGY

### PROSPECTS FOR GRAIN DEVELOPMENT IN KIRGIZIA

Moscow ZASHCHITA RASTENIY in Russian No 12, Dec 83 pp 4-5

[Article by T. S. Suyunbayev, director of the Osh Station for Plant Protection: "We Are Introducing Progressive Methods"; for related article see JPRS-UAG-84-017 of 14 May 84]

[Excerpts] Favorable natural conditions in Southern Kirgizstan are creating the conditions for the cultivation of the most valuable fruit crops and grapes, alfalfa, vegetable and melon crops, corn, rice, spike crops, aromatic types of tobacco and other crops on irrigated lands as well as under dry-farming conditions. In Osh Oblast the most valuable nut tree stands are springing up.

In recent years the problem of protecting plants was dealt with primarily with the aid of chemical means. Such a one-sided approach resulted in violations of biocenosis, in a significant curtailment in the number of entomophages (aphid lions, braconid wasps, parasitic wasps, flower flies, Coccinelidae and others) and in the development of resistance to insecticides in arthropods. This is why during the last decade on the basis of the elaborations of scientists and production workers the tactics for protecting the harvest have changed--an integrated method of combatting pests, diseases and weeds is being introduced.

Each year the oblast station for plant protection, according to an agreement with enterprises, accepts and trains 1,200 staff and non-staff inspectors from among accountants, link leaders, brigade leaders, sovkhoz workers and specialists. Classes are held at the station with the recruitment of workers of scientific-research facilities.

After being out in the fields every day, inspectors can immediately inform agronomists of the appearance of pests and diseases. Thus it becomes possible to eliminate the enemies of the harvest in microfoci with a minimal expenditure of labor and pesticides. Basically land (tractor, sometimes pack) sprayers are used. As a result, whereas in 1980 408,000 hectares were treated, in 1981-1982 315,000 hectares were treated and in 1983--206,000 hectares.

In discussing the protection of grain crops I would like to mention first the experience in combatting smut diseases. Previously, seed was treated directly in enterprises, which number over 170 in the oblast. Involved in the disinfection of seed were 650-700 persons, often poorly trained, which affected the

quality and schedules of work. Now the centralized treatment of seed has been organized, for which 14 complexes have been created. Here seed is cleaned, brought up to sowing condition and disinfected. All of the complexes were built according to model designs; they have disinfection machines, hoppers, storage facilities for disinfected and non-disinfected seed, mechanisms for sowing up packaging, loading and unloading technology and rooms for relaxation. Two-shift work with the presence of an agronomist-seed farmer and an agronomist-inspector has been organized. The quality of disinfection is regularly examined in the control-toxicological laboratory. The disinfection complex supplies disinfected seed to the rayon's enterprises according to multiple purchase orders from RAPO [Rayon agro-industrial association].

The result was fast in coming--covered smut in grain crops has been almost totally eliminated. Over 400 workers have been freed, it has become easier to control adherence to technological processes and a safety technology and to keep accounts. We now complete work 2-3 months before sowing. In the spring of 1983 the disinfection of spring spike crops was completed by 1 February. This work was done in a timely manner in the fall as well--241,000 tons of seed have been disinfected for the 1984 harvest.

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## TILLING AND CROPPING TECHNOLOGY

### PROSPECTS FOR GRAIN DEVELOPMENT IN OSH OBLAST

Frunze SEL'SKOYE KHOZYAYSTVO KIRGIZII in Russian No 1, Jan 84 p 16

[Article: "Using Adyry [Low foothills bordering the Ferghana depression] as Cultivated Feed Lands"]

[Text] In Osh Oblast a significant portion of agricultural lands is concentrated in the arid zone. The area of low-productivity pastures with lands suitable for plowing comprises 200,000 hectares. In their current state, adyry pastures are greatly overgrazed and sparse, yielding 1.5-3 quintals of poor-quality dry mass, whereas the results of long-term research show that they could yield 5-6 times more. According to old timers, 40-50 years ago these pastures were characterized by use of long duration, serving as a base not only for the spring and fall upkeep of livestock but also for the procurement of quality hay. However, as the density of livestock increased the valuable feed crops disappeared from the grass stand and weeds flourished.

The sowing of only annual crops, especially grains, does not solve the problem of assimilating adyry and actually makes it more difficult as soil loses fertility and erosion processes develop on slopes. The fact is that with great droughts organo-mineral fertilizers do not yield the expected effect.

The solution to the existing situation involves the introduction of scientifically-based methods for radically improving and efficiently utilizing adyry with strict controls over local soil and climate conditions.

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## TILLING AND CROPPING TECHNOLOGY

### BRIEFS

CORN GROWERS CONFERENCE--A scientific-coordination conference for specialists of CEMA member states was dedicated to the problems concerned with the use of highly efficient technologies for the cultivation of new and promising corn hybrids. This conference convened on 16 August in the capital of Moldavia. Representatives from Bulgaria, Hungary, the German Democratic Republic, Poland, the Soviet Union, Czechoslovakia and also Yugoslavia participated in the work of the conference. During this conference, which is being conducted within the framework of the Coordination Center for Corn of CEMA member states, the results of collaboration will be summarized and the prospects for joint activity in the area of improving existing and creating new technologies for the cultivation, harvesting, storage and utilization of a crop will be examined. /Text/ /Kishinev SOVETSKAYA MOLDAVIYA in Russian 17 Aug 83 p 4/ 7026

CSO: 1824/389

## FORESTRY AND TIMBER

### TIMBER INDUSTRY PRODUCTION GOALS FOR 1984 OUTLINED

#### Increased Output Defined

Moscow EKONOMICHESKAYA GAZETA in Russian No 14, Apr 84 p 1

/Article: "The Boundaris of the Timber Industry"/

/Text/ The goal set by the 26th Party Congress for the timber, cellulose paper and wood processing industry is to considerably increase the overall process of treatment of wood raw materials and, by means of advanced rates of speed, to develop the output of progressive types of production. With this aim, new technological processes and materials are established and mastered in the sector which provide for a wider assortment and better quality paper for printing, as well as a fuller utilization of spoiled sheets.

The labor collectives of the timber, cellulose paper and wood processing industry are called upon to make a heavy contribution to the production of commodities for the people. In the Eleventh 5-Year Plan, the output of wallpaper and paper for social needs is increasing. The manufacture of furniture is expanding and its range, quality and comfort are improving. Deliveries of wood paneled houses for rural housing construction are increasing.

In 1984, the plan provides for the production of wood shavings to increase by 606,000 cubic meters and wood fiberboard by 48 million square meters, industrial wood chips by 2.9 million cubic meters and glued veneer by 275,000 cubic meters.

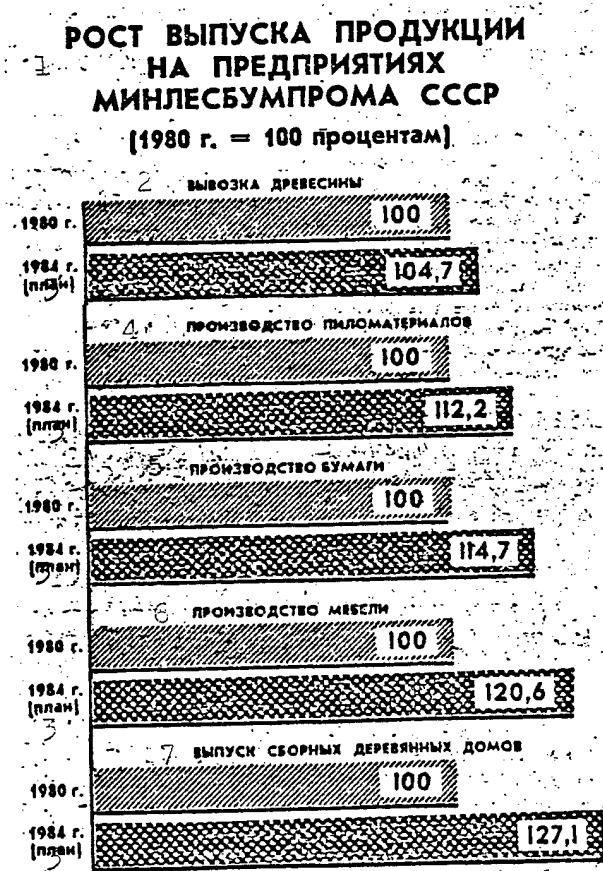
The resources of timber materials are directed, first of all, to satisfying the demands of construction, the cellulose paper industry, enterprises of domestic services for the public and packaging materials production.

There is deepening in the intensification of production in sectors connected with replacing manual labor with machine labor and with the rational expenditure of material resources. Growth in the output of finished products is overtaking the rate of procurement of raw materials. Timber logging, as shown on the diagram, has increased by only 4.7 percent during 4 years of the 5-year plan, while output of lumber has increased by 12.2 percent, paper production by 14.7 percent, furniture by 20.6 percent and wooden prefabricated houses by 27.1 percent.



Socialist emulation for labor productivity and additional reduction in production cost over and above the plan have developed widely in the sectors. Results of the first months of 1984 attest to the fact that many enterprises are equal to their responsibilities. The foremost timber cutting collectives have decided to fulfill the timber preparation goal of 4 months by 22 April--V. I. Lenin's birthday.

At the same time, after 2 months there has been less timber and lumber production for business than planned. There has been a 95 percent realization of plan fulfillment, taking delivery obligations into account and assuming an increase in planned costs. All this is evidence of strong reserves which must be brought into operation.



Key:

1. Growth of production output in enterprises of the Ministry of Timber and Paper Industry USSR (1980 = 100 percent)
2. Timber logging
3. plan
4. Lumber production
5. Paper production
6. Furniture production
7. Prefabricated wooden house output

Foremost enterprise of the sector--the Syktyvkarsk Timber Industry Complex, a collective which, due to its 1983 results, was awarded the transferrable Red Banner of the CC CPSU, the Council of Ministers of the Ussr, the All-Union Central Trade Union Council and the CC of the All-Union Leninist Communist Youth League, and is the 1984 initiator of socialist emulation. /Photo not reproduced/

#### Minister Reviews Industry Plans

Moscow EKONOMICHESKAYA GAZETA in Russian No 14, Apr 84 p 6

/Article by M. I. Busygin, minister of the timber, cellulose paper and wood processing industry, USSR: "The Timber Industry: Borders of Intensification"/

/Text/ In our sector, the Syktyvkarsk and Kotlassk papermakers and the Ivanovsk furnituremakers were the first to join the movement for a one percent increase in labor productivity and a half-percent reduction in production costs over and above the plan. Today, there are hundreds of such collectives and the number of those competing for a better intensification of important indices is continually increasing.

In 1984, the volumes of production of commercial timber and round timber are envisaged at the level of the 5-year plan goal for this year, while the output of cultural, domestic and household commodities exceeds them in commodity production.

#### Successful Winter Work Is Especially Significant For Timber Cutting

The immediate tasks in timber cutting are most closely connected with the need for maximum utilization of the advantages of the winter period, when there is successful exploitation of winter roads and ice routes, while in the lower storehouses of the enterprises large stocks of unprocessed tree trunks are built up for later processing during spring and summer.

Replying in deeds to the decisions of the party, striving since the first days of 1984 to achieve a high rate of speed and dedicating themselves to intensive work, many labor collectives are finding additional reserves and are assuming higher socialist obligations. The collectives of the enterprises and organizations of the all-union timber industry associations, "Sverdlesprom," "Tyumen'lesprom" and "Irkutsklesprom," have come forward with the initiative to set up a competition for a suitable celebration of the 114th anniversary of V. I. Lenin's birth.

Thus, the Sverdlov workers have decided to haul 6.7 million cubic meters of timber by that date. Owing to an improvement in the utilization of machines and mechanisms and the introduction of progressive forms of labor organization, they will exceed the overall output goal by 1.5 percent. In hauling the timber, the haulers' work shift will be increased by 10 percent and the shift coefficient will be brought up to 2.32.

A broad diffusion of this initiative in the foremost collectives will permit 106 million cubic meters of timber to be hauled by the ministry altogether by 22 April.

The timber processors have fulfilled the plan for 2 months in the current year. They have made an important step by reaching the 106 million mark. In comparison with January-February 1983, they have hauled 1½ million cubic meters more of timber. The initiators of the competition are working steadfastly. "Tyumen'lesprom" has delivered 158,000 cubic meters over the plan, "Sverdlesprom"--191,000, "Irkutskiresprom"--116,000 cubic meters.

#### The Fully-Mechanized Process of Woodcutting Work Is Being Introduced In a Continually More Active Manner

In 1984, the felling of trees by the application of felling and bundling, felling and logging and felling machines must amount to more than 43 million cubic meters, logging by felling and logging machines and tractors with hydraulic grips--more than 58 million cubic meters. Removing boles from tree trunks by machines and installations will exceed 46 million cubic meters.

The introduction of achievements of scientific and technical progress has a special significance for the timber-cutting industry. The level of labor mechanization is still here low and barely exceeds 40 percent. A large number of operations in the forest are carried out manually.

The timber cutting industry has 36,000 tractors at its disposal today, the majority of which are for a different technology. Our important reserve is the skill involved in utilizing this potential. If each tractor would work through only one more shift in the first quarter, the additional volume of timber transported by the ministry would be about a million cubic meters. For that reason, the efforts of the collectives are directed at the utmost development of the movement of the foremost timber cutting brigades, "Full output from new technology," in the reduction of enforced equipment idleness and in increasing their work shifts.

Repair service for machines and equipment remains a limited area in the sector. A frequent shortage of inexpensive parts, such as stuffing box seals, hydraulic cylinders or high-pressure hoses, causes 3 to 4 days of enforced idleness in the powerful timber cutting technology and turns into a loss of 400-500 cubic meters of timber.

Large Tasks are set for the timber processing subsectors of the timber complex. Last year there was some improvement in the work of the cellulose paper industry, but there are still shortcomings in the work of individual enterprises. Their activity has now been placed under special control.

In the 4th year of the 5-year plan, much remains to be done in the establishment and mastery of new technological processes for providing a wider assortment and a significantly better quality of paper for printing. Particular attention is being devoted to fulfilling the planned deliveries of packaging products for the agricultural industrial complex.

In 1984 Work Will Be Continued For the Wide Diffusion of the Kotlas and Solikam Combines Experiment, Approved by the Central Committee of the CPSU

As a result of the development of this initiative, the cellulose paper enterprises, in 1982-1983, significantly reduced expenditures of raw timber materials, increased the utilization proportion of deciduous timber and pulp, and made savings in chemicals and in electric and thermal energy. The reduction in the proportion of expenditures of raw materials, fuel, thermal and electric energy and several types of chemicals permitted a reduction for this period (contrasted with the 1981 level) in materials intensity for cellulose paper production.

The advanced experience in reducing materials consumption in production finds wide application in other subsectors of the timber complex as well. Planning and calculation of the production of fiberboard is now being implemented by the standard square meter, while that of wood shavings board, by the stand cubic meter, determined by means of expression in correction factors, taking into account the effectiveness of application among consumers of deciduous materials of reduced thickness and diminished outlay in manufacture, thanks to savings of raw materials and other materials. Everywhere there is now output of wood shavings board in a thickness of 16 instead of the former 19 and 22 mms. The mechanical index of tensile strength has also been retained.

The production of glued veneer has been converted into planning by square meters and cubic meters. This has permitted the economic interest of enterprises in a reduction of timber expenditure for its production, as well as an improvement in supply to consumers of deciduous materials in various thicknesses.

We are preparing to convert the planning of wooden packing materials from cubic meters to full assortments. In this way, the conditions will be eliminated for the unwarranted expenditure of raw timber materials on thick-walled boxes and an incentive for the output of shipping packaging in reduced thicknesses will be established. The task, of course, is not a simple one. It requires the introduction of new types of equipment into production and a reconsideration of individual technological processes. But the goal--savings of a great quantity of timber--justifies the means.

Our enterprises are manufacturing timber materials in continually greater volume as substitutes for commercial timber. The technological chip and timber board are manufactured from low quality raw materials and waste products which even a few years ago were considered worthless. In the production of cellulose and wood pulp, the technological chip replaces high quality pulpwood timber. Timber board is actively supplanting round wood and saw-timber. Glued veneer and packing cartons are also highly efficient substitutes for round timber.

For the first 3 years of the 5-year plan, the output of efficient substitutes, calculated in terms of commercial timber, amounted to more than 200 million cubic meters. This means that 1.6 million hectares of additional forest area did not have to be cut down.

In 1984, the output of substitutes, in terms of round timber, must amount to about 81 million cubic meters, 12 million higher than the level for last year.

In 1984, the ministries' enterprises must produce 7 billion rubles worth of various cultural, domestic and household items, including 5.8 billion rubles worth of furniture. More than 300 million pieces of wallpaper will be produced, 5.8 million pairs of skis, almost 400 million rubles worth of white paper products of various kinds, almost 4 million hockey sticks, a large number of notebooks, albums, paper products, various timber commodities and furniture.

#### The Country's Workers In the "Timber Shop" Make a Large Contribution To the Production of Commodities For Popular Consumption

As a result of the reconstruction and expansion of a group of enterprises, the output of wallpaper for 3 years of the 5-year plan grew by a third. Nevertheless, it is still not sufficient. It is within our power to alleviate the acuteness of this problem. The Saratov Wallpaper and Carton Factory will soon begin working at full capacity, construction of the wallpaper shop in the Yasnopolyana Experimental Combine for Carton and Paper Packaging will be completed and the Moscow Experimental Wallpaper Factory is being reconstructed.

Last year, the Central Committee of the CPSU approved the initiative of a group of enterprises that proposed the development in the country of socialist competition for increasing the output of high quality commodities for popular consumption. Among these was also the collective of the Furniture Combine "Vilnius." The cabinet makers of the Lithuanian capital set high goals for themselves. In 1984, 85 percent of production output here will have the government stamp of quality.

The initiative of the Lithuanian furniture makers found a wide response. The workers in the "Tatmebel'" Association have decided to produce an output of 400,000 rubles over the plan by the end of the 5-year plan, to double production of items with the stamp of quality and to completely discontinue products for which there is no demand. The collectives of many other enterprises have reconsidered their socialist obligations.

The enterprises of the sector have successfully begun the year in terms of output of commodities for the people. In January-February, there was 30 million rubles worth of furniture produced over the plan, 513,000 pieces of wallpaper, and more than 73,000 boxes of matches. The basic index which characterizes the work of an enterprise according to the increase of production for the people is, as is known, the output of commodities per ruble of the wage fund. According to the ministry, in 1984, as a whole, this amounted to 1 ruble 29 kopecks. We set as a goal to be achieved that every enterprise should make commodities for popular consumption. We must overcome many shortcomings here.

The demand for different types of furniture and white paper items has not yet been fully satisfied. Cases of claims for replacement of defectively produced goods are not infrequent. Unfortunately, it is also necessary to speak of difficulties in material and technical provisions, especially of high efficiency chemical materials. We receive few dyes in attractive colors from the Ministry of Light Industry USSR. The elimination of these shortcomings will promote growth in the output of items of mass demand in better quality.

The workers of the timber industry, like all Soviet people, armed with the decisions of the party on the future development of the country's economy, are straining every effort for the successful fulfillment of the goals of the 4th year of the 5-year plan.

Output of cultural, domestic and household commodities in enterprises of the Ministry of Timber and Paper Industry USSR (1984 plan compared with 1980).  
/Inside caption: 100 - 121.6 percent./ /Photo not reproduced/

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SIGNIFICANCE OF FORESTRY, TIMBER PRODUCTION WITHIN APK

Moscow EKONOMIKA SEL'SKOGO KHOZ'YAYSTVA, in Russian No 3, Mar 84 pp 28-36

/Article by G. Vorob'yev, chairman of the USSR State Committee for Forestry:  
"Forestry Within the Agroindustrial Complex"/

/Text/ The Soviet people, based upon their selfless labor, are implementing the decisions handed down during the 26th party congress. During the December (1983) Plenum of the CPSU Central Committee and the 9th Session of the USSR Supreme Soviet, 9th Convocation, it was mentioned that measures are being implemented throughout the country aimed at improving management, raising organizational ability and strengthening state labor and planning discipline. Increases have taken place in the rates for economic development, the economic indicators have improved and absolute increases have taken place in them compared to the first two years of the five-year plan.

Our forestry workers have made a considerable contribution towards solving the national tasks for the country's economic and social development. The steady growth in the national economic requirements for wood and other forestry products has confronted the branch with the important task of converting forestry production over to the intensive path of development. Intensification as a process for the expanded reproduction of forest resources is based upon the extensive use of highly productive equipment, a modern technology and improvements in administration and planning, the organization of labor and in regulating payments for labor. As a result, labor productivity and production efficiency are improving and an increase is taking place in the output of products from each hectare of the forestry fund, with reduced expenditures for labor and resources.

In carrying out the decisions handed down during the 26th party congress, the forestry enterprises are converting production over to the intensive path of development and, on this basis, they are realizing improvements in production efficiency and in labor productivity. During the 1981-1983 period, the branch's enterprises fulfilled the state plan for the principal indicators. The volume of industrial output increased from 2,166,000,000 rubles in 1980 to 2,295,000,000 rubles in 1983. During 1983 alone, a profit of 471.7 million rubles was realized from the industrial activities of the enterprises. Over the 3 year period, labor productivity increased by 6 percent. This growth surpassed the growth in wages. Forest restoration work was carried out on an area of 6 million hectares. Today the area of forest restoration exceeds the area of tree fellings.

In forestry a gradual conversion is being carried out over to managing it based upon the principles of continuous and efficient use of the forests. Improvements are taking place in the qualitative structure of the forests. Forest restoration work is being conducted using the more valuable strains of trees such as pine, spruce, cedar, larch, oak and beech. The plantings of Persian walnut, pistachio, almond, pomegranate and sea buckthorn are being expanded. Industrial methods for forest cultivation are being introduced into operations. Machine systems are being developed for the complete mechanization of plantings, for tending a forest and for the felling and processing of timber. The forestry enterprises have commenced implementing a special purpose comprehensive program for the creation in the European-Urals zone of the USSR of a permanent forestry raw material base for the pulp and paper industry, through the cultivation of a forest on special plantations. For example, plantations are being created in Gorkiy and Kostroma oblasts for the Balakhninskiy Combine. Work has commenced in connection with the planting of forestry plantings of the plantation type in Ivanovo, Yaroslavl and other oblasts. In the interest of expanding and strengthening the feed base for sheep raising, increases are taking place in the work volumes associated with the afforestation of pastures in the semi-desert and desert regions of the Uzbek SSR, Turkmen SSR, Kazakh SSR and also in the southeastern regions of the RSFSR.

As a result of considerable work being carried out in connection with the planting of new forests, assistance for natural regeneration and improvements in tending the forests and protecting them against fires, pests and diseases, the area covered by forests has increased by 64 million hectares compared to 1965 and the overall supply of wood has increased by 6 billion cubic meters.

The decisions handed down during the 26th party congress and subsequent plenums of the CPSU Central Committee have created new conditions for developing the country's forests. Forestry has become a component part of the agroindustrial complex, the requirements with regard to the use of forests for solving national economic and social programs and particularly the Food Program of the USSR have been raised and objective prerequisites have been created for intensifying and strengthening relationships between forestry on the one hand and agriculture and other branches of the agroindustrial complex on the other.

In this regard, the complete use of lands belonging to the state forestry fund, forest meadows, pastures and other forest territories for the production of agricultural products, the strengthening of the feed base for animal husbandry the procurements of mushrooms, berries, wild fruit and other gifts of the forest and an increase in the deliveries of forestry materials to agriculture constitute a most important component part of the national measures aimed at ensuring an effective return from the production and scientific-technical potential of the branches in the country's agroindustrial complex.

The contribution by forestry towards solving the mentioned tasks is also influenced by the accelerated development of work directed towards the creation of field-protective forest belts and anti-erosion forest plantings. Vast areas of agricultural land in the USSR are periodically being subjected to drought conditions and dry winds which lower sharply the cropping power of the agricultural crops. Wind and water erosion cause considerable damage to agriculture, with almost three fourths of the arable land being affected by these conditions. Thus the campaign being waged against the spontaneous forces



of nature has assumed the character of an important state task. Protective forestation together with organizational-administrative, agrotechnical and hydraulic engineering measures are expected to play a large role in solving this task. The creation of protective forest plantings on agricultural lands represents one very important and long-term means, among a complex of measures, for combating wind and water erosion, drought conditions and dry winds. The system of forest improvement and anti-erosion measures includes the creation of field-protective forest belts, protective forest plantings in gullies, ravines, sands and on other unsuitable lands, the afforestation of water reservoirs the shores of rivers and pastures and the planting of trees in populated points and on farms.

The forestry enterprises and organizations carried out a large program of forest improvement work aimed at creating various types of protective plantings. At the present time, there are more than 4.4 million hectares of artificially created protective forest plantings in the country, including 1.6 million hectares of field-protective forest belts, 1.5 million hectares of gully and ravine plantings, 0.9 million hectares of protective forest plantings on sands and 0.4 million hectares of pasture-protective forest belts. These plantings protect more than 40 million hectares of agricultural land, from which the kolkhozes and sovkhoses annually obtain considerable additional quantities of grain, feed and other agricultural products. The most effective work in the area of protective forestation is being carried out in Krasnodar and Stavropol krais, in Rostov, Voronezh and Kursk oblasts in the RSFSR and in the Ukrainian and Uzbek SSR's.

Studies have shown that field-protective forestation, combined with other anti-erosion measures, ensures considerable land reclamative, protective and economic effectiveness in the campaign to obtain high and stable agricultural crop yields. Inspections carried out on a mass scale by USSR Gosleskhoz /State Committee for Forestry/ and USSR Minsel'khoz /Ministry of Agriculture/ established a positive relationship between field-protective forest belts and agricultural crop yields.

According to the data obtained from observations carried out over a period of many years at VNIALMI /All-Union Scientific Research Institute of Conservation Afforestation/, the Don Zonal Scientific Research Institute of Agriculture and KazNIILKhA /Kazakh Scientific Research Institute of Forestry/, the average increase in grain crop yields as a result of protective forest plantings carried out during the past few years in the steppe zone and on common chernozem soils is as follows: for Krasnodar Kray -- 4.8 quintals per hectare, Rostov Oblast -- 2.8 quintals per hectare, Volgograd Oblast -- 3.7, Altay Kray -- 3.3 and Kustanay Oblast -- 2.8 quintals per hectare. The relative increase in yields was roughly the same in all regions and amounted to the following: for grain crops -- 15-22 percent, for technical and forage crops -- 25-40 percent. According to data supplied by SredAzNIILKhA /Central Asian Scientific Research Institute of Forestry/, the increase in raw cotton yield in the zone of strong winds, following the use of a protective system of forest belts in 1981, amounted to 27 percent.

The data cited testifies to the fact that protective forestation is an effective means for combating such spontaneous forces of nature as drought conditions, dry winds and wind and water erosion of soils and that it aids in

solving the principal problem of the agrarian sector of the economy -- an accelerated and stable increase in the production of grain and other agricultural products.

The operational experience accumulated at the Kanevskiy, Rzhishchev and other hydraulic engineering forest improvement stations in the Ukrainian SSR, the Kislovodsk Experimental-Demonstration Mechanized Forestry Farm in Stavropol Kray, the Tumazy Scientific-Production Association in the Bashkir ASSR and many other forestry enterprises of the RSFSR testifies to the high effectiveness of protective plantings for combating the water erosion of soils and for improving the productivity of agricultural lands and the economic mastering of gully and ravine systems.

The experience of the Stavropol foresters in creating field-protective forest belts on kolkhoz and sovkhoz lands should be disseminated on an extensive scale. They employed large seedlings (2-2.5 meters in height), which under favorable soil and climatic conditions furnish a high economic effect with regard to raising the agricultural crop yields. Forest belts based upon the planting of two and three year old seedlings of black locust, poplars, ash and other strains, during the very next year following planting, begin to exert a positive influence on the fields protected by them and within a period of 3-4 years, as a result of the increase in agricultural crop yields, they cover completely the difference in expenditures for their creation compared to belts of young seedlings. In the process, the possibility of the seedlings being damaged by livestock or machines is reduced to a minimum, the preservation and survivability of the belts are raised and completely mechanized operations are achieved, commencing with the cultivation of planting stock and the digging up and planting of the seedlings in their permanent locations and ending with the tending of the plantings.

Forest belts grown from large-size planting stock do not require costly or labor-intensive improvement cuttings, since the required design for the forest belts is achieved at the moment that they are planted.

The agricultural organs in the various areas and the kolkhoz and sovkhoz workers in all areas in Stavropol Kray have assigned a high value to forest belts planted on the basis of large-size seedlings.

Sandy areas constitute a strong reserve for the carrying out of forest improvement work, a considerable portion of which could be used for agricultural purposes. An example of the effectiveness of use of these lands is the experience accumulated in mastering the Don region and Lower Dnepr sandy areas. Following the carrying out of afforestation work on a large scale in the Lower Dnepr sandy area, horticulture and viniculture underwent extensive development. More than 70,000 hectares of forest plantings were grown on so-called worthless land, which in recent years have afforded protection for 7,000 hectares of orchards and 10,000 hectares of vineyards. This strengthening of sandy areas has reduced the danger of wind erosion and it has made it possible to raise the cropping power of the grain crops.

During the current five-year plan, work concerned with protective afforestation has become more extensive in nature, with greater attention being given to the

problems concerned with the quality and effectiveness of newly created forest belts. A new trend has arisen in connection with this work -- the afforestation of pasture lands in the desert and semi-desert regions of Central Asia and Kazakhstan. Protective forest plantings increase the capacities of pastures, promote the creation of a strong feed base for animal husbandry and protect the animals against the blazing sun, sand storms and other unfavorable factors. The data obtained indicates that the increase in the yield of feed from these pastures, protected by forest belts, reaches 20-25 percent and that the fodder yield obtained from saxaul shoots in the belts and fed to the livestock reaches 8-10 quintals per hectare or more. Work is also being carried out in the semi-desert regions of the RSFSR aimed at creating pasture-protective forest plantings. According to data supplied by VNIALMI, the expenses required for creating protective plantings for animal husbandry purposes are repaid within 3-4 years.

Approximately 441,000 hectares of forest plantings have been created on pasture lands in the desert and semi-desert regions of Central Asia, Kazakhstan and the southeastern European part of the RSFSR; they provide protection for approximately 1.6 million hectares of pasture.

Considerable volumes of work have been carried out in the Uzbek SSR in connection with the afforestation of pastures. In this republic, the land of the state forest fund occupies more than 5.2 million hectares. The green plantings serve as a screen against burning hot winds, they aid in retaining moisture in the soil and they create shade and cool conditions. Large amounts of pasture land are found in desert and semi-desert regions where the burning hot sun, strong winds and a shortage of water cause damage to the poor grass stands. The scientists have proven that the productivity of these vast territories can be raised by a factor of more than 1.5-2 through the creation of field-protective forest belts using saxaul. Such plantings reduce sharply the force of sand storms, they lower the degree of soil erosion, they protect flocks against the winter cold and they mollify the climate. Experience bears out the fact that the operational indicators of livestock farms where forest belts are cultivated are higher by one third than the average level.

The creation of pasture-protective forest belts does not require great expenditures and it is clear that such belts are economically profitable. The expenditures are repaid within 3-5 years and the productivity of the pastures is retained for 15-20 years. In conformity with a scientific-technical forecast and an economic justification, the overall requirement for protective forest plantings on pasture lands is approximately 8.5 million hectares.

During 3 years of the five-year plan, forestry enterprises carried out afforestation work on more than 643,000 hectares of pasture land, they installed anti-erosion plantings on 221,000 hectares of gullies, ravines, sandy areas and on other unsuitable kolkhoz and sovkhoz land and they also planted 123,600 hectares of field-protective forest belts.

The forests are of special importance with regard to protecting the environment. They regulate the structure of the atmosphere, they retain water, they protect the soil from erosion and they are of great sanitary-hygienic value. Thus forestry in our country is being carried out on a differentiated basis, with

consideration being given to the national economic value of the forests, their locations and the functions being performed. A great amount of work has been carried out in recent years in connection with dividing up the forests into groups and categories of protectiveness. This was done in those instances where it was required in conformity with the specifics set forth in the Principles of Forestry Legislation for the USSR and Union Republics. This is making it possible to utilize in a more efficient manner both the raw material and ecological nature-protecting functions of the forests.

At the present time, the forests of green zones surrounding cities and other populated points, an area of 14.8 million hectares, have been singled out, restrictions have been placed upon the use of forest belts along the shores of rivers, lakes, reservoirs and other water objects, including forest belts which protect the spawning areas of valuable food fish -- 47.5 million hectares, protective forest belts along railroads and highways -- 4.2 million hectares, forest zones for the sanitary protection of water supply sources and regions for the sanitary protection of resorts -- 1.7 million hectares, tundra forests -- 25.7 million hectares and a number of other categories of special ecological or special purpose value.

In all, the first group includes 123.7 million hectares or approximately 18 percent of the country's forests. Tree fellings are strictly limited in these forests. They are carried out using methods aimed at improving the forest environment, the condition of the standing timber and the water-retention, protective and other useful natural properties of forests.

Only improvement cuttings and sanitary fellings are permitted on reservations, in national and natural parks, in reserve forest tracts, in forests of scientific or historical value, in zones of natural memorials, in forest parks and in certain other categories.

A considerable increase has taken place in the role being played by forestry in providing agriculture and the local population with forestry materials and goods and products produced from wood. The forestry farms and other enterprises of the timber industry, when carrying out improvement cuttings and sanitary fellings, procure more than 40 million cubic meters of liquid wood annually. This wood is used mainly for satisfying the requirements of agriculture and the rural population. It serves as a fine construction material for the erection of animal husbandry complexes, farms, hothouses, houses, childrens' pre-school institutes and installations of a domestic or municipal nature.

More than 2,500 forestry enterprises are carrying out orders for the rural areas, delivering framing materials for houses, roofing and packaging materials, construction parts, hothouse frames, carpentry items, summer camps for livestock, crates, beehives and other products made from wood. The delivery volumes for such goods have increased considerably in recent years and their nomenclature has expanded. In 1983 alone the deliveries of crates and packaging materials amounted to 1.3 million cubic meters, of which amount fruit and vegetable packaging materials accounted for 275,000 cubic meters. The forestry enterprises are producing wooden box kits, including fruit and vegetable packaging, packaging materials for cream butter and margarine and multiple use packaging materials, barrel staves for beer and wine.

In carrying out the decisions handed down during the 26th CPSU Congress and subsequent plenums of the CPSU Central Committee, the branch's enterprises and organizations are implementing measures aimed at achieving more complete and efficient use of the wood raw materials and increasing the production of goods which are in great demand for satisfying the requirements of the population. During the years of the 11th Five-Year Plan, a further expansion and increase in the production of goods of a cultural-domestic and economic nature is ensured. Roughly 547 million rubles worth of these goods were produced during the 1981-1983 period, with the plans calling for no less than 433 million rubles worth to be produced during the two remaining years of the five-year plan. Taking into account the requirements of the trade organizations, the forestry enterprises in recent years have expanded considerably the assortment of goods for which there is a high demand and they have improved the quality of the goods and products being produced. The production of kitchen units, wicker products made from vines, resort and garden furniture, garden houses, products with artistic wood painting and simple types of kitchen utensils has been organized.

The forestry enterprises and organizations are carrying out a great amount of work in connection with procuring hay for satisfying their own requirements, for making deliveries to sovkhozes and kolkhozes and also for expanding and increasing the production of vitamin meal from wood, used as an additive in the production of mixed feed. In 1983, more than 450,000 tons of hay of all types were procured and 175,000 tons of vitamin meal were produced from wood. More forage grain, silage, haylage, rameal feed and straw was procured than has been the case in past years. Increases are taking place in the production volumes for technological chips for enterprises of the microbiological industry, which produce nutrient yeasts. The hydrolysis plants have been supplied with 310,000 cubic meters of technical chips and sawdust.

The branch's machine building enterprises are increasing their production and deliveries of agricultural machines and equipment to branches of the agroindustrial complex. Each year the kolkhozes and sovkhozes are being supplied with 1,200 BLSH-2.3 meadow harrows, 1,800 SM-1.7 molasses mixers, 1,300 molasses distributors and a number of other items of equipment, the total value of which is in excess of 7 million rubles.

During the past few years, a complex of machines and mechanisms for achieving a considerable increase in the production volume for coniferous vitamin meal has been developed and is now in series production. An expansion is taking place in the work associated with creating mechanized equipment for the harvesting and processing of nuts, berries, mushrooms and other food products of the forest. During this current five-year plan alone, the arsenal of technical equipment has been increased by the addition of new lifts and devices for harvesting the fruit and different types of forest berries, with units for grading the Persian walnuts, with drying units and so forth. A great amount of attention is being given to the creation and production of complexes of forestry machines for protective afforestation.

The carrying out of the orders of the rural areas on a priority basis and an increase in the commodity turnover of forestry enterprises and organizations with the sovkhozes and kolkhozes is promoting the implementation of a large-scale program for social-domestic and cultural construction in the rural areas.

In the interest of ensuring planned support for the needs of rural construction in the form of lumber, the timber procurement enterprises of agriculture in lightly forested regions and also those ministries and departments which carry out the construction of agricultural installations will be supported by 216 timber raw material bases having an operational supply of 651 million cubic meters of wood and an annual distribution of 23.4 million cubic meters of wood.

The forestry organs are furnishing assistance in organizing the efficient use of kolkhoz and sovkhoz forests. Towards this end, forest management work is being carried out on an extensive scale, with plans being developed for the organization and management of kolkhoz and sovkhoz forests. During the 1981-1983 period, such work was carried out on an area of 11.1 million hectares.

The state organs of forestry are providing the kolkhozes and sovkhozes with assistance in personnel training, in improving their skills and in organizing the contractual fulfillment with the kolkhozes and sovkhozes of forest husbandry, forest improvement and forest protection work. In addition, they are exercising control over the status, use, reproduction and protection of the forests.

USSR Gosleskhoz /State Committee for Forestry/ has developed new rules for the mowing of hay and the grazing of livestock in forests, which are making it possible to expand the use of lands belonging to the state forest fund for the purpose of carrying out the Food Program. The forestry organs and enterprises, jointly with the party organs, local soviets and RAPO /rayon agroindustrial association/, are carrying out work associated with making proper use of feed lands.

The state forest fund includes 4.7 million hectares of haying land and 22.3 million hectares of pasture land, all of which constitute a large feed base for the development of animal husbandry operations. For the purpose of organizing more complete and efficient use of the forest lands on a long-term use basis, 125.8 million hectares of land from the state forest fund have been turned over to the kolkhozes and sovkhozes.

Each year the kolkhozes, sovkhozes, the subsidiary farms of enterprises and organizations and citizens engaged in maintaining livestock on their private plots use 2.5-2.7 million hectares of haying land that is under the jurisdiction of forestry. The grazing of livestock on tracts deemed suitable for use as forest pastures is being carried out on an area of 27.9 million hectares, including by kolkhozes and sovkhozes on an area of 26.7 million hectares.

In the northern regions, great importance is being attached to the use of tundra thin forests as reindeer pastures for the development of reindeer breeding operations. Approximately 15.5 million hectares of such land have been turned over to reindeer farms for long-term use.

An increase in the contribution being made by the branch's workers towards implementing the Food Program has become a very important practical concern of the forestry enterprises and organizations. In conformity with this fact, a determination has been made regarding the role and place of each production sector and measures have been developed and are being implemented which set

forth the specific production tasks for the current five-year plan and for the period up to 1990. Such measures have been prepared for each union and autonomous republic, oblast and kray. For the purpose of coordinating the work of forestry organs with the organs of other APK /agroindustrial complex/ branches and ensuring a single system of management within the USSR Gosleskhos system for operations concerned with implementation of the Food Program at all levels of forestry administration, councils were created for the problems of the agroindustrial complex. The principal task of these branch councils is to ensure interaction and proper coordination in the work of the forestry enterprises and organizations with the activities of the appropriate territorial organs of the APK, in the interest of achieving more complete and efficient use of state forestry fund lands and timber, logistical, labor and financial resources for the production of farming and animal husbandry products.

The initial years of operation by forestry enterprises and organizations within the structure of the agroindustrial complex reveal that the formation and development of production relationships between forestry, agriculture and other branches have made it possible to place considerable reserves in operation for solving the problem of supplying the population with food goods.

The operational trend now being employed has promoted the creation of conditions for the comprehensive inclusion of the reserves of a forest hectare, for making complete and all-round use of the forest resources and for ensuring uniform workloads for the fixed capital and manpower.

Important national economic value is attached to the more complete inclusion in the food resources of wild-growing fruit, berry and nut plants and also mushrooms.

Approximately 100 types of wild fruit, berry and nut plants and almost 200 types of edible mushrooms can be found growing in the forests of the USSR. The medicinal and nutritional properties of sea buckthorn, European birchcherry, magnolia vine, raspberries, dog rose, golden root, St. John's wort, ptarmigan-berry, currants and a number of other useful and valuable plants are well known. The state forestry fund includes more than 40 million hectares of cedar forests, 44,000 hectares of natural Persian walnut plantings, 158,000 hectares of pistachios, 2 million hectares of hazel nut thickets, more than 100,000 hectares of apple trees, pears, cherry crabapples, cherries, cherry-plums and dogwood, 1 million hectares of mountain ash, small cranberries and currant bushes, small cranberries are growing on 1.5 million hectares, red whortleberries on 1.1 million hectares, raspberries on 400,000 hectares, whortleberries on more than 500,000 hectares and blueberries and cloudberry on 300,000 hectares. In all, wild-growing fruit and berry plantings occupied more than 6 million hectares of forest area, of which amount almost 5.5 million hectares consisted of berry patches. The largest supplies of wild-growing fruit and berries were found in forests in the RSFSR, the Ukrainian SSR, Belorussian SSR, the republics of Central Asia and the Baltic and other regions throughout the country.

The availability of such resources and the great economic value attached to their use in the country's national economy for satisfying the requirements of the population demands that the complete harvesting and processing of these materials be organized in an efficient manner. The fruits of the forest and

especially cedar nuts, hazelnuts, apples and pears, in the southern regions -- Persian walnuts, chestnuts, almonds, pistachios and raspberries -- in the northern regions -- red whortleberries, blueberries, cloudberry, small cranberries, whortleberries, mountain ash and others, are playing a considerable role in the population's food balance and thus one vital task is that of ensuring their complete development and use in the national economy. For an extended period of time, the principal procurement agencies for the wild-growing products were consumer cooperation and the food industry. The forestry enterprises and organizations commenced this important work in 1966. In conformity with the assigned tasks, more and more importance has been attached in recent years to the procurement and processing of wild-growing fruits, berries, nuts, mushrooms and medicinal raw materials and also to the development of apiculture, horticulture, hunting, fishing and to the use of other raw material resources of the forest.

A great amount of attention has been given to developing the logistical base for production and to creating the conditions required for organizing the systematic and scientifically sound use of non-wood products of the forest, including taking into account the available resources, introducing more efficient methods for their reproduction and operation and also for organizing specialized farms for processing the raw materials procured. Towards this end, production-procurement bases are now being created in the oblasts, krais and autonomous republics. They are organizing work in connection with the production and procurements of products at forestry enterprises, they accept the products from the enterprises and they carry out the processing, packaging and shipping of the products to the consumers. They have also been entrusted with control over the fulfillment of planned tasks, supplying the enterprises with the necessary equipment, packaging materials and medicaments and also with maintaining accounts with the suppliers and consumers. Some of these bases have their own procurement and mushroom-cooking points.

Specialized farms for the comprehensive use of forest resources represent a fine form for organizing the additional use of forests. Such farms have undergone their greatest development in connection with the organization of nut trades. Thus the Altay Experimental Forestry Farm was organized for the purpose of developing new forms for organizing the complete use of cedar forests. The principle of comprehensive management of cedar forests has become the foundation for the efficient, thrifty and multi-purpose use of the riches found in the cedar taiga. Fifty five nut trade bases have been created at forestry enterprises. Special nut trade zones, intended for the harvesting of nuts, have been singled out for the preservation and efficient utilization of the vast resources of the cedar taiga. In conformity with the principles of forest legislation for the USSR and the union republics, it is forbidden to carry out industrial timber procurements in these zones; only improvement cuttings are permitted. At the present time, the area of nut trade zones exceeds 11.5 million hectares. Specialized farms have been created for sea buckthorn, hazelnuts and small cranberries.

A great amount of work is being carried out in many forestry enterprises of the RSFSR, the Ukraine and other union republics in connection with the extraction and industrial processing of birch juice, which owing to its content of microelements and sugar is a useful beverage and raw material for the



preparation of valuable food and perfume products. From 20 to 30 tons of juice are procured during a season from 1 hectare of a mature birch forest. The canning of this juice has been organized in order to ensure its extended storage. The production of birch juice is increasing with each passing year and it now exceeds 84,000 tons.

The procurements of wild-growing fruit and berries and medicinal plants are continuing to undergo further development. During the period devoted to the mass harvesting of food products and medicinal and technical raw materials within the forestry system, labor and recreation camps are organized for the youth. The procurements of wild-growing products are being carried out by the local population, by family members of forestry workers and by students attending forestry technical schools.

In carrying out the technical and organizational measures aimed at further expanding and increasing the procurements and processing of wild-growing fruit and berries, mushrooms, nuts and medicinal and technical raw materials, the forestry enterprises in 1983 procured 32,000 tons of wild-growing fruit and berries and 26,000 tons of bush varieties of fruit and berries. Thirty five thousand tons of potatoes, vegetables and melons were produced, marketable honey -- 1,500 tons, fruit and berry juices -- 13,000 tons and canned fruit and vegetables -- 50 million conventional cans. Nine production-procurement bases were created in the branch, 4,500 procurement points, 70 fruit processing departments, 150 storehouses for vegetables and fruit and 3,000 hectares of plantations for the cultivation of medicinal raw materials and berries. Work was carried out in connection with the modernization of existing departments and storehouses and the organization of special laboratories concerned with the quality of the products being procured. However the procurement volumes for non-wood forestry products are still extremely low. The constantly increasing demand for berries and mushrooms underscores the need for raising these volumes. The forestry workers are concentrating their efforts on increasing considerably the production of forestry food products and expanding the fruit and berry plantations, the network of procurement points and the construction of storehouses and processing departments.

The branch's scientific-research organizations have developed recommendations for the regionalization of forests according to the types of non-wood forestry products and also methods for determining cropping power and taking into account the principal types of fruit, berries and mushrooms and the methods for forecasting their cropping power.

In light of the party and government decisions, the forestry organizations and enterprises are attaching considerable importance to the creation of new and strengthening the logistical base of existing subsidiary farms and also to furnishing maximum assistance to branch workers in developing their private plots.

Seventy three percent of the branch's enterprises have subsidiary farms or fattening points for cattle and swine. In 1983 alone, 10,500 tons of meat were produced at these facilities against a task calling for 9,000 tons.

The majority of the leaders of forestry enterprises and organizations are correctly solving the tasks concerned with finding additional resources for

agricultural output. The subsidiary farms, URS's /Administration of Workers' Supply/ and ORS's /Department of Workers' Supply/ are being allocated the required equipment, transport vehicles, seed and young animals. Pigsties, cow barns and other livestock facilities and also vegetable storehouses, warehouses and hothouses for the raising of vegetables are under construction. A great amount of attention is being given to having the subsidiary farms and fattening points create their own feed bases. The branch has been assigned the following task -- by the end of the five-year plan, to have subsidiary farms or cattle and swine fattening points at each enterprise and to raise meat production to 12,500 tons.

The socialist competition will play an important role in carrying out the plans and tasks as outlined. The collectives of leading enterprises of the Volyn, Rovno and Altay forestry administrations have initiated a competition under the slogan "A Great Contribution Towards the Food Program." They have achieved high results in increasing the production of food products of the forest and agricultural products. Thus in 1983 the forestry enterprises in Volyn Oblast procured more than 9 million rubles worth of food products, compared to only 200,000 rubles worth in 1967. The plans for 1990 call for the production of 12 million rubles worth of non-wood products.

In connection with successfully solving the tasks assigned to forestry by the party and government, great importance is attached to developing and improving the brigade form for organizing and stimulating labor. The brigade form responds most completely to the requirements for raising labor productivity and regulating the payments for labor. It is promoting an increase in the work activity of collectives, the efficient use of working time and a strengthening of labor discipline.

Approximately 50,000 brigades are functioning within the branch. The proportion of workers included under the brigade form of labor organization is 65 percent and by the end of the 11th Five-Year Plan it will have reached 75 percent. All-round brigades comprising workers from various professions are the most common. There are more than 36,000 such brigades in forestry. More than 10,000 brigades are specialized and engaged in carrying out similar type technological operations. More than 4,000 brigades operate on the basis of cost accounting procedures.

The operational experience of leading brigades reveals that their labor productivity and other operational indicators are considerably higher than those for other workers. Thus the brigade headed by USSR State Prize Laureate I.I. Slivki at the Rybnitsy Forestry Production Association in the Moldavian SSR, by employing leading agricultural practices and all-round mechanized operations in a forestry nursery, achieved high indicators over a period of many years in obtaining high quality standard planting stock. Each year this brigade is declared the winner of the all-union socialist competition. The brigade headed by I.A. Kuz'min at the Vyazniki Experimental-Demonstration Timber Industry Farm in Vladimir Oblast, which has converted over to the brigade contract method, fulfilled its task for 3 years of the five-year plan prior to 20 February 1983. A considerable savings was realized in the use of logistical resources.

The operational experience of the Vladimir Forestry Administration and the Shentalinskiy Timber Industry Farm in Kuybyshev Oblast also testifies to the great advantages offered by the brigade forms for labor organization. At the Vladimir Forestry Administration, all of the brigades engaged in carrying out timber procurement work, improvement cuttings and the processing of wood, all those working at lower warehouses and repair-mechanical workshops and also drivers engaged in transporting the timber have converted over to cost accounting procedures. As a result, a considerable savings has been achieved in the use of logistical resources and the yield of costly grades has increased by more than 20 percent.

The dissemination of the experience of these collectives on an extensive scale is producing fine results.

The introduction of brigade forms for labor organization in the branch is being coordinated very closely with a reduction in manual labor, which in forestry production involves 73 percent of the workers and in industry -- 36 percent. A sharp reduction must be achieved in the use of manual labor in all sectors of production. This year, special purpose all-round programs for reducing the amount of manual labor are being developed at all of the branch's enterprises. The development of Stage I has been completed at a majority of these enterprises. Thus, as a result of the implementation of measures outlined by the Belorussian Ministry of Forestry, more than 1,000 workers will be released from having to perform manual labor during the 12th Five-Year Plan alone, including 600 from laborious work. The movement being carried out under the slogan "Machines For Carrying Out Manual Labor" has been developed on an extensive scale throughout the branch. During 3 years of the five-year plan, 10,500 workers have been released from having to perform manual labor throughout the branch as a whole.

The inclusion of forestry within the structure of the agroindustrial complex, in addition to solving branch problems, has required increased coordination of the work of the forestry enterprises with the enterprises and organizations of other branches. In recent years, protective forest plantings have been created and are being created over considerable areas. Experience reveals that the greatest agronomic effect is being realized by those farms, on the lands of which a complete system of protective forest plantings, in combination with other types of anti-erosion measures, is being created. In this regard, it is considered advisable to determine the list of farms and even rayons in which an entire complex of organizational-administrative, agrotechnical, forest-improvement and hydraulic engineering anti-erosion measures will be carried out in the near future.

The forests are the principal habitat for the more valuable types of game fauna. Consumer cooperation is the principal procurement agency in the country for products of the hunting economy. But in addition to Tsentrosoyuz /Central Union of Consumers' Societies/, these products are also procured by a number of ministries and departments, including the organs of forestry. The hunting economy is one of the few branches of the national economy that does not have a definite or uniform structure. In terms of their mission, departmental affiliation and a number of other peculiarities, we can single out three groups of hunting enterprises in our country: registered sport-hunting farms, trade hunting farms and state hunting farms of a sport nature.

Departmental isolation and the absence of a single managerial organ for the country as a whole is restraining to a considerable degree the development of the hunting economy. Thus all of the elements of this economy should ideally be combined and the country's hunting lands turned over to the appropriate state organizations, which should ensure efficient control over their use for hunting purposes and the implementation of a complex of hunting, biotechnical and other measures.

One particular problem is deserving of serious attention -- that of ensuring deliveries by the aircraft and helicopters of civil aviation, in response to requests by the forestry enterprises and worker-collectors in the procurement areas, of wild-growing fruit, berries, mushrooms and cedar nuts. A payment must be established for transporting the wild-growing fruit, berries, mushrooms and cedar nuts procured by the forestry enterprises by aircraft and helicopters, in accordance with the existing rates for transporting cargo over the actual distance to the one terminal.

The 1984 plan for the development of forestry operations calls for the carrying out of tense tasks in connection with making more complete use of the production potential and material, labor and financial resources, increasing labor productivity, raising the quality and lowering the production costs of the products and increasing profits. The fulfillment of these tasks will serve to promote an improvement in the contribution being made by forestry in implementing the Food Program.

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